ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017
PROJECT BASELINE AGREEMENT

CAPM SF-280, 0Q120

Resolution SHOPP-P-2223-05B

(to be completed by CTC)

1. FUNDING PROGRAM

- ☐ Active Transportation Program
- ☐ Local Partnership Program (Competitive)
- ☐ Solutions for Congested Corridors Program
- ☑ State Highway Operation and Protection Program
- ☐ Trade Corridor Enhancement Program

2. PARTIES AND DATE

2.1 This Project Baseline Agreement (Agreement) effective on June 28, 2023 (will be completed by CTC), is made by and between the California Transportation Commission (Commission), the California Department of Transportation (Caltrans), the Project Applicant, Caltrans, and the Implementing Agency, Caltrans, sometimes collectively referred to as the "Parties".

3. RECITAL

3.1 Whereas at its 3/17/2022 meeting the Commission approved the State Highway Operation and Protection Program and included in this program of projects the CAPM SF-280, 0Q120, the parties are entering into this Project Baseline Agreement to document the project cost, schedule, scope and benefits, as detailed on the Project Programming Request Form attached hereto as ***Exhibit A***, the Project Report attached hereto as ***Exhibit B***, the Performance Metrics Form, if applicable, attached hereto as ***Exhibit C***, as the baseline for project monitoring by the Commission.

3.2 The undersigned Project Applicant certifies that the funding sources cited are committed and expected to be available; the estimated costs represent full project funding; and the scope and description of benefits is the best estimate possible.

4. GENERAL PROVISIONS

The Project Applicant, Implementing Agency, and Caltrans agree to abide by the following provisions:

4.1 To meet the requirements of the Road Repair and Accountability Act of 2017 (Senate Bill [SB] 1, Chapter 5, Statutes of 2017) which provides the first significant, stable, and on-going increase in state transportation funding in more than two decades.

4.2 To adhere, as applicable, to the provisions of the Commission:

- ☐ Resolution _____, "Adoption of Program of Projects for the Active Transportation Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Local Partnership Program", dated _____
- ☐ Resolution _____, "Adoption of Program of Projects for the Solutions for Congested Corridors Program", dated _____
- ■ Resolution G-22-29, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated 3/17/2022
- ☐ Resolution _____, "Adoption of Program of Projects for the Trade Corridor Enhancement Program", dated _____

4.3 All signatories agree to adhere to the Commission's Guidelines. Any conflict between the programs will be resolved at the discretion of the Commission.

4.4 All signatories agree to adhere to the Commission's SB 1 Accountability and Transparency Guidelines and policies, and program and project amendment processes.

4.5 Caltrans agrees to secure funds for any additional costs of the project.

4.6 Caltrans agrees to report to Caltrans on a quarterly basis; on the progress made toward the implementation of the project, including scope, cost, schedule, and anticipated benefits/performance metric outcomes.

4.7 Caltrans agrees to prepare program progress reports on a on a semi-annual basis and include information appropriate to assess the current state of the overall program and the current status of each project identified in the program report.

4.8 Caltrans agrees to submit a timely Completion Report and Final Delivery Report as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.9 Caltrans agrees to submit a timely Project Performance Analysis as specified in the Commission's SB 1 Accountability and Transparency Guidelines.

4.10 All signatories agree to maintain and make available to the Commission and/or its designated representative, all work related documents, including without limitation engineering, financial and other data, and methodologies and assumptions used in the determination of project benefits and performance metric outcomes during the course of the project, and retain those records for six years from the date of the final closeout of the project. Financial records will be maintained in accordance with Generally Accepted Accounting Principles.

4.11 The Inspector General of the Independent Office of Audits and Investigations has the right to audit the project records, including technical and financial data, of the Department of Transportation, the Project Applicant, the Implementing Agency, and any consultant or sub-consultants at any time during the course of the project and for six years from the date of the final closeout of the project, therefore all project records shall be maintained and made available at the time of request. Audits will be conducted in accordance with Generally Accepted Government Auditing Standards.

5. SPECIFIC PROVISIONS AND CONDITIONS

5.1 Project Schedule and Cost
See Project Programming Request Form, attached as Exhibit A.

5.2 Project Scope
See Project Report or equivalent, attached as Exhibit B. At a minimum, the attachment shall include the cover page, evidence of approval, executive summary, and a link to or electronic copy of the full document.

5.3 Performance Metrics
See Performance Metrics Form, if applicable, attached as Exhibit C.

Attachments:

Exhibit A: Project Programming Request Form
Exhibit B: Project Report
Exhibit C: Performance Metrics Form *(if applicable)*

SIGNATURE PAGE
TO
PROJECT BASELINE AGREEMENT

Resolution SHOPP-P-2223-05B

Al B. Lee Digitally signed by Al B. Lee
Date: 2023.05.05 15:34:08 -07'00'

Date

Regional Project Manager

Project Applicant

Date

Regional Project Manager

Implementing Agency

Doanh Nguyen (May 5, 2023 16:47 PDT) 05/05/2023

Date

FOR District Director

California Department of Transportation

Michael Keever (Jun 7, 2023 13:40 PDT) 06/07/2023

Tony Tavares Date

Director

California Department of Transportation

Tanisha Taylor 07/11/23

Date

Executive Director

California Transportation Commission

Baseline agreement information was extracted from Caltrans' project data systems. Project description, funding and performance measures are from CTIPS. Project delivery milestones are from PRSM. All information is current and accurate.

STATE OF CALIFORNIA ● DEPARTMENT OF TRANSPORTATION

BASELINE AGREEMENT | **Date:** 03/21/23 10:35:08 AM

District	EA	Project ID	PPNO	Project Manager
04	0Q120	0418000045	2022B	LEE, ALFRED

County	Route	Begin Postmile	End Postmile	Implementing Agency	
SF	280	R 0.0	T 7.5	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

Project Nickname

CAPM SF-280

Location/Description

In the City and County of San Francisco, from San Mateo County line to Brannan Street. Rehabilitate pavement, upgrade concrete median barrier, rehabilitate drainage systems, upgrade facilities to Americans with Disabilities Act (ADA) standards, and replace Whipple Avenue Pedestrian Overcrossing No. 34-0096. (G13 Contingency)

Legislative Districts

Assembly:	17	Senate:	11	Congressional:	12

PERFORMANCE MEASURES

	Primary Asset	Good	Fair	Poor	New	Total	Units
Existing Condition	Pavement	13.6	21.4	0	0	35	Lane-miles
Programmed Condition	Pavement	35	0	0	0	35	Lane-miles

Project Milestone	Actual	Planned
Project Approval and Environmental Document Milestone	01/06/23	12/15/22
Right of Way Certification Milestone		05/02/24
Ready to List for Advertisement Milestone		06/01/24
Begin Construction Milestone (Approve Contract)		03/02/25

FUNDING (Allocated amounts are shaded)

Component	Fiscal Year	SHOPP					Total
PA&ED	20/21	4,101					4,101
PS&E	21/22	6,682					6,682
RW Support	21/22	322					322
Const Support	23/24	9,877 *					9,877
RW Capital	23/24	1,373					1,373
Const Capital	23/24	82,958 *					82,958
Total		105,313					105,313

* Not Authorized

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

To: Lyle Stockton
SHOPP SB-1 Baseline Agreement
HQ Program Management

Date: May 15, 2023

File: 04-0Q120
PID- 0418000045
04 - SF – 280-PM R0.0/T7.5

From: Al B. Lee *Al B. Lee*
Project Manager
District 04

Subject: **ACKNOWLEDGEMENT OF PA&ED DATE MODIFICATION FROM BASELINE SUPPLEMENTAL PROJECT REPORT**

This memorandum is written to accompany the SB-1 Baseline Agreement for this multi-asset project on I-280 in San Francisco.

On May 13, 2020, this project was programmed as a new project into the SHOPP program for FY 23/24 RTL delivery. The intermediate PA&ED milestone was revised to October 14, 2022 due to the complexity of the Pedestrian Overcrossing structure and outreach needed with the community. During the final review of the PA&ED package, the project team encountered inconsistencies in the asset management values in the District database and needed to resolve those issues. The Project Report was approved and signed on January 6, 2023.

All future milestone delivery dates remain as proposed and to be incorporated into this baseline agreement.

Project Milestones

Milestone	**Date**
PA&ED M200	1/06/2023 Actual
R/W Cert M410	5/02/2024 Target
RTL M460	6/1/2024 Target
Approve Contract M500	3/2/2025 Target

cc: D. Nguyen,
L. Culik-Caro
M. Sulieman

Project Report

For Project Approval

In San Francisco County

From San Mateo County line

To Brannan Street

I have reviewed the right of way information contained in this report and the Right of Way Data Sheet attached hereto and find the data to be complete, current and accurate:

Michael O'Callaghan
Michael O'Callaghan (Dec 15, 2022 11:29 PST)

signing for Julie McDaniel, Deputy District Director,
Right of Way and Land Surveys

APPROVAL RECOMMENDED:

Al B. Lee

Al B. Lee, Project Manager

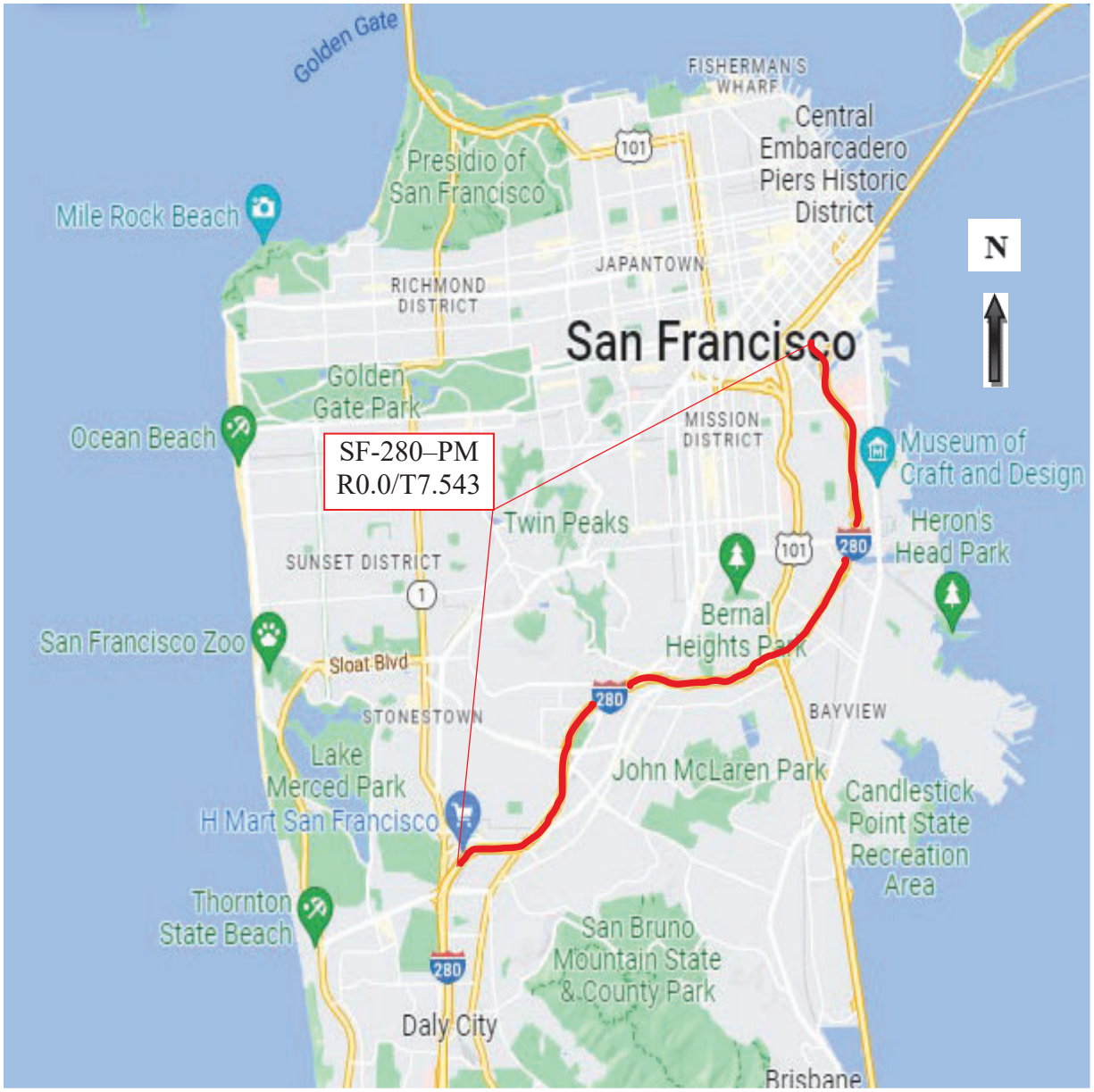
James Hsiao, Office Chief,
Design, Special Projects

PROJECT APPROVED:

Helena (Lenka) Culik-Caro
Deputy District Director, Design

January 6, 2023
Date

Vicinity Map



In San Francisco County from San Mateo County line to Brannan Street

This Project Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data on which the recommendations, conclusions, and decisions are based.

Van Hew

VAN HEW
REGISTERED CIVIL ENGINEER

12-12-2022

DATE

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

To: Lyle Stockton
SHOPP SB-1 Baseline Agreement
HQ Program Management

Date: May 15, 2023

File: 04-0Q120
PID- 0418000045
04 - SF – 280-PM R0.0/T7.5

From: Al B. Lee *Al B. Lee*
Project Manager
District 04

Subject: **ACKNOWLEDGEMENT OF PA&ED DATE MODIFICATION FROM BASELINE SUPPLEMENTAL PROJECT REPORT**

This memorandum is written to accompany the SB-1 Baseline Agreement for this multi-asset project on I-280 in San Francisco.

On May 13, 2020, this project was programmed as a new project into the SHOPP program for FY 23/24 RTL delivery. The intermediate PA&ED milestone was revised to October 14, 2022 due to the complexity of the Pedestrian Overcrossing structure and outreach needed with the community. During the final review of the PA&ED package, the project team encountered inconsistencies in the asset management values in the District database and needed to resolve those issues. The Project Report was approved and signed on January 6, 2023.

All future milestone delivery dates remain as proposed and to be incorporated into this baseline agreement.

Project Milestones

Milestone	**Date**
PA&ED M200	1/06/2023 Actual
R/W Cert M410	5/02/2024 Target
RTL M460	6/1/2024 Target
Approve Contract M500	3/2/2025 Target

cc: D. Nguyen,
L. Culik-Caro
M. Sulieman

Project Report

For Project Approval

In San Francisco County

From San Mateo County line

To Brannan Street

I have reviewed the right of way information contained in this report and the Right of Way Data Sheet attached hereto and find the data to be complete, current and accurate:

Michael O'Callaghan
Michael O'Callaghan (Dec 15, 2022 11:29 PST)

signing for Julie McDaniel, Deputy District Director,
Right of Way and Land Surveys

APPROVAL RECOMMENDED:

Al B. Lee

Al B. Lee, Project Manager

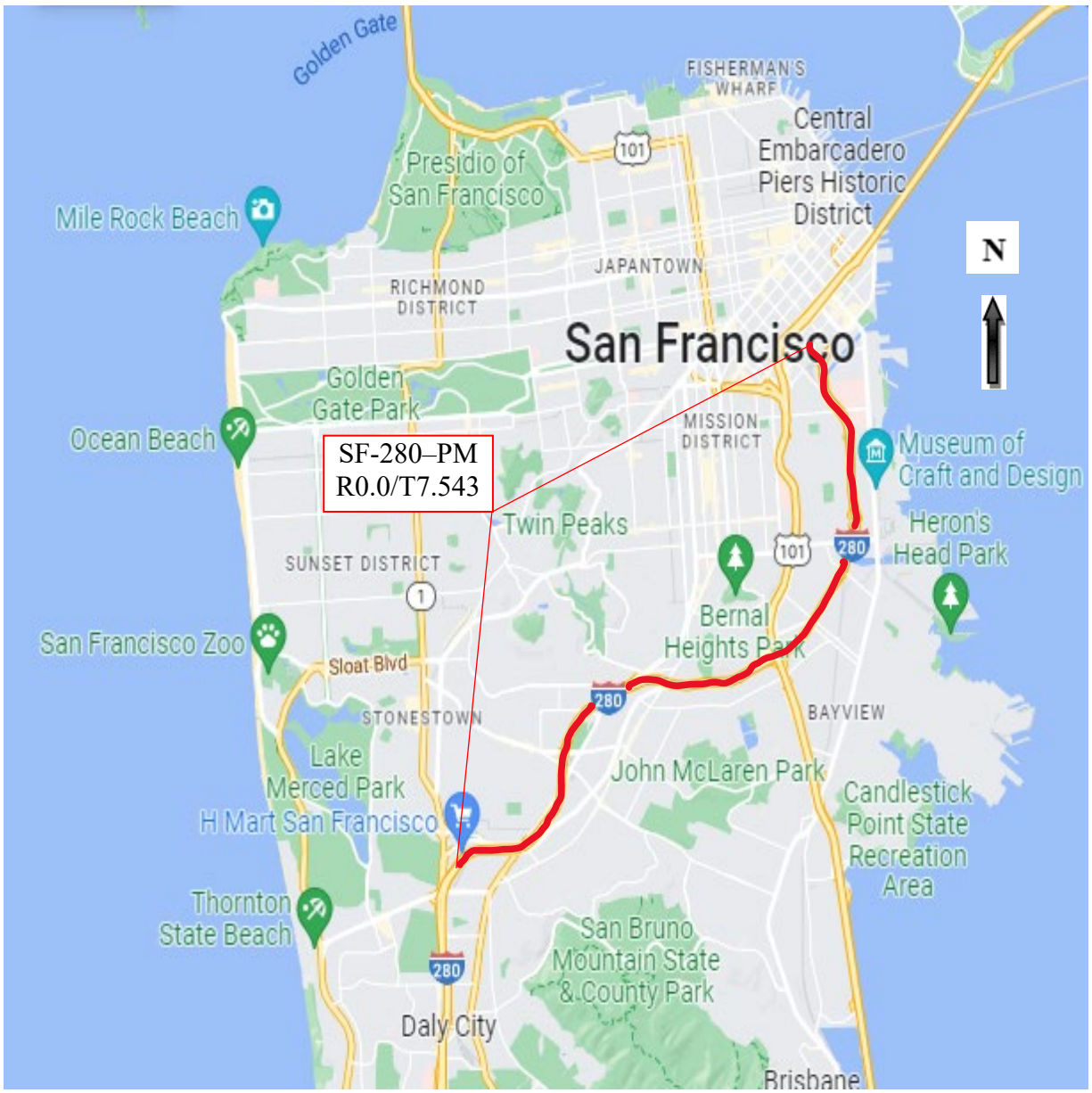
James Hsiao, Office Chief,
Design, Special Projects

PROJECT APPROVED:

Helena (Lenka) Culik-Caro
Deputy District Director, Design

January 6, 2023
Date

Vicinity Map



In San Francisco County from San Mateo County line to Brannan Street

This Project Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data on which the recommendations, conclusions, and decisions are based.

Van Hew

VAN HEW
REGISTERED CIVIL ENGINEER

12-12-2022

DATE

Table of Contents

1. INTRODUCTION

Project Description:

The purpose of the project is to grind and resurface the existing mainline traveled ways and shoulders to improve ride quality on Interstate 280 (I-280) from St Charles Avenue to Brannan Street in the City and County of San Francisco (see Attachment A for the project Location Map). Additional work includes the replacement of the Whipple Avenue pedestrian overcrossing (POC) (Bridge No. 34-0096) and upgrading curb ramps to current standards (see Attachment B for the Strip Map and Preliminary Layouts). The following table lists the key features of the project.

Project Limits	04 - SF - 280 – PM R0.0/T7.543	
Number of Alternatives	Two (one Build Alternative and the No-Build Alternative)	
	Current Cost Estimate:	**Escalated Cost Estimate:**
Capital Outlay Support	$21,046,000	$21,046,000
Capital Outlay Construction	$75,277,000	$82,958,000
Capital Outlay Right of Way	$1,595,000	$1,595,000
Funding Source	20.XX.201.121 – Pavement Rehabilitation 20.XX.201.XXX – SHOPP - G13 Contingency	
Funding Year	Fiscal Year 2023/24	
Type of Facility	Multi-lane freeway	
Number of Structures	Two Bridges (Bridge No. 34-0096 and Bridge No. 34-0046)	
SHOPP Project Output	• Bridge Preservation: 2,358,523 square feet • Bridge Replacement / New Construction: 20,898 square feet • Asphalt Pavement Minor Rehab (CAPM): 0.752 lane miles • Concrete Pavement Minor Rehab (CAPM): 34.227 lane miles • ADA – Deficient Elements: 31 Deficient Elements	
Environmental Determination or Document	Categorical Exemption (CEQA) / Categorical Exclusion (NEPA)	
Legal Description	In San Francisco County from San Mateo County Line to Brannan Street	
Project Development Category	Category 5	

Notes:
ADA = Americans with Disabilities Act
CAPM = Capital Preventive Maintenance
CEQA = California Environmental Quality Act
EA = each
NEPA = National Environmental Policy Act
PM = post mile(s)
SF = San Francisco County
SHOPP = State Highway Operation and Protection Program

2. RECOMMENDATION

It is recommended that this Project Report (PR) be approved with the Build Alternative and that the project proceed to the Plans, Specifications, and Estimate (PS&E) phase.

3. BACKGROUND

Project History

On June 28, 2019, the Project Initiation Report (PIR) was approved, and the project was programmed in the 2020 State Highway Operation and Protection Program (SHOPP). The PIR identified two alternatives for further study in the Project Approval and Environmental Document (PA&ED) phase: one Build Alternative and the No-Build Alternative.

On June 24, 2020, the California Transportation Commission (CTC) voted to approve the programming of the project into the 2020 SHOPP. The project is also programmed in the 2021 FTIP under SHOPP Grouped Listing Roadway Preservation, TIP ID VAR170006.

On November 19, 2020, the first Project Development Team (PDT) meeting was held to kick off the PA&ED phase where members of the PDT and program advisors were invited.

On November 3, 2022, a Management Review Meeting was held, and consensus was reached to deliver the build alternative and all scopes of this project by Construction Manager / General Contractor (CMGC) contract. The PDT team discussed how Cast-In-Drilled-Hole (CIDH) piles and ramp construction could be constructed within the steep terrain, limited access, and close proximity of Bay Area Rapid Transit (BART) and the limited construction operation hours set forth by BART standards. Attendees agreed that CMGC will be beneficial and will consider all scopes, whereas further consideration to split the various scopes to bridge construction, polyester overlay and Capital Preventive Maintenance (CAPM) could be made after PA&ED.

Community Interaction

On July 16, 2021, the California Department of Transportation (Caltrans) held a project introduction meeting with the San Francisco County Transportation Authority (SFCTA), the San Francisco Municipal Transportation Agency (SFMTA or Muni), and San Francisco Department of Public Works (SFDPW). The Caltrans PDT introduced the project's purpose and need, the preliminary alternatives, and the project pedestrian study to the City of San Francisco (City) agencies. The City agencies requested a pedestrian user survey to help with the analysis of alternatives. They suggested having an access point close to Muni stops and minimizing the length of the POC to lessen chances of crime and vandalism and to attract pedestrian users. SFDPW agreed to help arrange an aesthetics meeting with City architects. It was also agreed that Caltrans would schedule monthly project meetings with City agencies.

On August 4, 2021, an aesthetics meeting was held with the architects from SFCTA, SFMTA, and SFDPW. The built environment (Cayuga Park, the BART system) and the colors, textures, and materials in the area around the existing POC and the alternative alignments were introduced. It was suggested to consider light, airy, and inviting aesthetics with a sense of movement. The Caltrans design team was tasked to continue developing two alternatives (Alternative 4 and Alternative 7) based on comments and suggestions from the City agencies. Alternative 4 is further discussed in Section 5B and Alternative 7 is further discussed in Section 5A. (4.).

On August 25, 2021, a meeting was held with SFCTA and SFMTA to discuss the pedestrian study, the development of the alternative alignments, and aesthetics updates (fence designs). City agencies shared their future mobility guidelines for portable wheel devices and the potential to include Cayuga Avenue as part of the Slow Streets Program. The City agencies suggested to avoid midblock landings on the San Jose Avenue side and to incorporate pedestrian user counts. The City agencies also suggested reaching out to the elected San Francisco (SF) District Supervisor's Office and local artists as part of community engagement activities.

On September 10, 2021, another meeting was held with SFCTA and SFMTA to discuss SFCTA's future development plan on Broad Street and on how it may have a potential conflict with the POC alternative alignments, the pedestrian study report from the Caltrans bike/pedestrian team, and Farallones Street as a potential slow street in the future. It was concluded that the landing location of the existing POC is the most suitable location and foot traffic generators for using the POC are Cayuga Park, the Pacific Supermarket, the community center, Alemany Boulevard, and the Muni M Line stops. SFMTA recommended Alternative 7 as the Preferred Alternative because its landing location wouldn't conflict with future developments in the area. It was also agreed to solicit direct community input such as polling the community on its concerns with the existing POC.

On September 22, 2021, the Caltrans bike/pedestrian team presented the POC project to the Caltrans District 4 (D4) Pedestrian Advisory Committee (PAC) meeting. The PAC suggested that the project should have fewer switchbacks to lower the cost, with the compromise of having steeper-than-planned ramps to enable better alignments (to consider landing at Farragut Avenue for the east side of the POC), to have a slightly wider radius for the Alternative 7 switchbacks, and to pay attention to noise mitigation and lighting.

On December 17, 2021, a meeting was held with SFCTA, SFMTA, SFDPW and the San Francisco Recreation and Parks Department (SFRPD) to continue the discussion of the development of the alternative alignments and to introduce the project to SFRPD. It was agreed to continue to develop Alternative 7 and to consider it as the Preferred Alternative.

On February 2, 2022, a meeting was held with District Supervisor Safai's Office. Caltrans and the City agencies discussed who will be responsible for the maintenance of the POC and potential cost-sharing for the improvements connected to the POC.

The District Supervisor Safai's Office agreed to send out a list of community groups that may be interested in public engagement. Caltrans agreed to keep the District Supervisor's Office informed about POC project updates.

On March 16, 2022, a project introduction meeting was held with the board members of the Cayuga Neighborhood Improvement Association (CNIA). The board members expressed concern about the new POC having a direct access into Cayuga Park and interest in participating in choosing the POC aesthetics. It was also suggested to use a local artist's name for the name of the new POC. It was agreed that Caltrans would present the project to all the members of the association at an upcoming CNIA meeting.

On April 16, 2022, Caltrans held a meeting with the full membership of the CNIA. Of the approximately 30 people in attendance, everyone was in favor of replacing the POC, with several members saying they currently used it daily. One member did not want the POC directly connecting to Cayuga Park (the existing POC does not directly connect to Cayuga Park). Members of the CNIA were interested in naming the POC after Demetrio Braceros, who helped transform the park with his wooden sculptures. The members also expressed an interest in seeing his sculptures featured on the wall on the San Jose Avenue side of the freeway. Caltrans stated that it would give an updated presentation on the project to the CNIA in the fall of 2022.

On May 9, 2022, Caltrans held a meeting with the San Francisco Public Utilities Commission (SFPUC) to discuss the lighting of the POC. It was concluded that the existing POC lights cannot be maintained because they cannot be accessed without closing the freeway. It was suggested to put the lights on the interior of the new POC to provide easy access to maintain the lights. Caltrans agreed to determine where the existing service cabinet is. SFPUC agreed to send its lighting catalog to Caltrans to use as the lighting guideline for the new POC.

On July 13, 2022, a project introduction meeting was held with BART. BART agreed to provide its as-builts and typical constraints information related to the construction of the POC. It was agreed that BART would be involved early in the Design phase for the security fence on the proposed POC ramps and that future meetings will be held with BART for the 35% and 65% design development.

A virtual public meeting with the CNIA was scheduled for 6 pm September 21, 2022. The meeting was advertised a month in advance to SF agencies, SF Bicycle Coalition, Elected Officials office. There were no attendees from the public. Subsequently, on October 15, 2022, Caltrans Public Information Office (PIO) representative attended an in-person community fair meeting at Cayuga Park where there were approximately 90 people in attendance. Everyone who discussed with the Caltrans PIO officer was in favor of the project, while minor of participants did not use the crossing. Those in favor expressed need for graffiti removal and lights, as lack of operating lighting has been a deterrent for nighttime use.

Caltrans will continue to provide outreach during PS&E and in the construction phase to keep local agency and community involved and engaged.

Existing Facility

The segment of I-280 in San Francisco County is a four- to nine-lane, south-north highway spanning 7.5 miles that starts at the San Francisco County / San Mateo County line (St. Charles Avenue) and terminates in the South of Market district (Brannan Street) in the northeast section of San Francisco. I-280 was designed and constructed in the late 1950s and early 1960s. The segment of I-280 within the project limits is an accessed-controlled freeway that includes highway elements such as guardrails, safety lighting, signs, and median barriers at various locations within the segment.

The Whipple Avenue POC at post mile (PM) 1.06 was constructed in 1964 at the same time as I-280. It is a 243-foot long continuous reinforced concrete box girder structure that spans I-280. It connects San Jose Avenue on the west side with Alemany Boulevard and Cayuga Playground on the east side. BART tracks run parallel with I-280 and are adjacent to the POC ramp structure.

Table 3-1 lists the geometric information for the sections of I-280 within the project limits.

Table 3-1: Roadway Geometric Information Within the Project Limits

County-Route	Post Miles	Through Traffic Lanes		Paved Shoulder Width		Median Width (ft)
		No. of Lanes	Width (ft)	Left (ft)	Right (ft)	
SF-280	R0.0/R1.924	8	12	10	8	22
SF-280	R1.924/R2.623	9	11–12	10	8	14–22
SF-280	R2.623/R3.897	8	12	10	8	22
SF-280	R3.897/R4.009	8	12	2	8	12–22
SF-280	R4.009/R4.070	6	12, 14	2	8	—
SF-280	R4.070/R4.881	4	17, 12	2	8	—
SF-280	R4.881/R5.951	6	12	0	0	—
SF-280	R5.951/R6.061	7	12	0	0	22
SF-280	R6.061/T6.996	8	12	0	0	22–30
SF-280	T6.996/R7.543	4	12	8	8	40

Notes: SF = San Francisco County
— = not applicable

4. PURPOSE AND NEED

Purpose:

The purpose of the project is to:

- Provide Americans with Disabilities Act (ADA) compliant crossing over I-280 at Farallones Street, eliminating the nonstandard vertical clearance, and taking action to address the existing seismic deficient structure.

- Extend the life of the existing I-280 pavement.

- Provide ADA complaint curb ramps and Accessible Pedestrian Signals (APSs).

Need:

- Demolish and replace the existing Whipple Avenue POC with a new POC structure with standard vertical clearance and is seismic compliant to the latest Caltrans Standards.

- Grind and resurface the existing roadway.

- Replace existing curb ramps and upgrade to APS systems.

4A. Problem, Deficiencies, Justification

The existing pavement condition for 2022 was predicted based on 2019 Pavement Condition Report data. According to the predicted pavement condition data, the lane-weighted average International Roughness Index (IRI) for the existing pavement is less than 170, which shows fair to good condition. However, the IRI value for the flexible pavement segments alone is much higher than 170. The data also show lane-weighted average third stage cracking of 1.5% and lane-weighted average faulting of 3.9% for the rigid pavement segments. The existing Asphalt Concrete (AC) pavement near adjacent structures, show some settlement. Between PM 6.3 and PM 7.5, the pavement is missing both approach and departure slabs (see Attachment C for the Materials Recommendation). If these minor to moderate pavement distresses are left uncorrected, the roadway will deteriorate to a level where major rehabilitation is needed.

The existing Whipple Avenue POC has a non-ADA compliant 14% grade, a nonstandard vertical clearance of 17.2 feet at the number 4 lane of northbound (NB) I-280, and is seismically vulnerable.

Various existing curb ramps are not ADA compliant, and the existing median concrete barrier is not up to current standards.

4B. Regional and System Planning

Corridor Overviews

I-280 is a major south-north freeway connecting Santa Clara, San Mateo, and San Francisco Counties. It begins in the South Bay, at the I-280 / US Highway 101 (US 101) / Interstate 680 (I-680) interchange and runs parallel to US 101 through

three counties; traversing a total distance of about 60 miles and intersecting with US 101 at the Alemany Interchange in San Francisco. As an alternative to US 101, I-280 indirectly connects the Peninsula with the San Francisco–Oakland Bay Bridge, the San Francisco International Airport, and the Golden Gate Bridge. High Occupancy Vehicle (HOV) lanes extend through a section of the I-280 corridor in Santa Clara County, but no HOV lanes exist on I-280 in San Mateo or San Francisco Counties. The segment of the freeway from PM R 0.0 to PM T 7.5 varies from between four and nine freeway lanes to a four-lane conventional highway at the northern terminus in San Francisco.

The I-280 corridor traverses a high-density, urban city with historical landmarks and a well-established public transportation system that includes the local bus and cable car system (Muni), the Bay Area heavy rail system (BART), regional bus systems (Golden Gate Transit, Alameda–Contra Costa [AC] Transit, San Mateo County Transit District [SamTrans]), Caltrain, and the future California High-Speed Rail System.

Bicyclists are prohibited along the I-280 freeway. Annual Average Daily Traffic (AADT) ranges from 40,000 to 93,000 vehicles/day from PM T7.54 to PM R4.01) and from 107,000 to 153,000 vehicles/day from PM R3.28 to PM R0.00.

Federal and State Planning

The I-280 Transportation Concept Report (TCR), adopted in 2013, states that there will be no additional lanes added to this section of the freeway. Although future population, housing, and job growth are projected along this corridor, the concept lane configuration of I-280 will remain unchanged from the existing condition due to constraints in the corridor. It is Caltrans' policy to manage the existing system to the extent feasible to accommodate future demand. This management entails inclusion of HOV facilities and Traffic Operation Systems (TOS) improvements.

Future transit investments in the corridor—such as Caltrain electrification and other upgrades to increase service frequency and reliability and the planned California High-Speed Rail (HSR) service connecting San Francisco with Southern California via San José and the Central Valley—may affect future traffic volumes on US 101 and I-280, especially for trips between San Francisco and San José.

Transit, bicycle, and pedestrian strategies aim to integrate and enhance networks along and across the I-280 corridor.

Table 4-1 lists the federal and State of California (State) planning characteristics for I-280 within the project limits.

Table 4-1: Federal and State Planning Characteristics for I-280 Within the Project Limits

Functional Classification	California Freight Mobility Plan	Trucking Designations	National Highway System	State Scenic Highway	Interregional Road System
Interstate	Non-primary Highway Freight System	STAA [1]	Eisenhower Interstate	Not eligible	Not part of IRRS

1. STAA allows large trucks to operate on the interstate and certain primary routes called collectively the National Network. These trucks, referred to as STAA trucks, are longer than California legal trucks, and roadways are designed to accommodate their turning radii.

Notes:
I-280 = Interstate 280
IRRS = Interregional Road System
STAA = Surface Transportation Assistance Act of 1982 (National network allows large commercial trucks on Interstates)

Regional Planning

The Metropolitan Transportation Commission (MTC) is the State-designated Regional Transportation Planning Agency and the federal-designated Metropolitan Planning Organization for the San Francisco Bay Area. MTC is responsible for the Regional Transportation Plan (RTP), a long-range planning report for the region that incorporates known financial constraints. Under Senate Bill (SB) 375, along with an updated RTP, each region in California is mandated to develop a Sustainable Communities Strategy (SCS) that promotes compact, mixed-use commercial and residential development that is walkable, bikeable, and close to mass transit, jobs, schools, shopping, parks, recreation, and other amenities to help achieve the greenhouse gas (GHG) emissions reduction targets outlined in SB 32.

In partnership with the regional planning agency Association of Bay Area Governments (ABAG), MTC developed Plan Bay Area (PBA) 2050, approved in October 2021. PBA 2050 serves as the San Francisco Bay Area's RTP and SCS and is the latest strategic update to PBA 2040 (from 2017). PBA 2050 consists of 35 strategies that focus on improving housing, economic growth, transportation, and the environment in the Bay Area's nine counties. These strategies serve as a blueprint to inform the nine counties of the Bay Area to plan and create a more resilient and equitable region over the next 30 years and beyond. Each strategy is a public policy or investment to be implemented collaboratively at the city, county, regional, or State level with equity as the priority for execution.

Table 4-2 lists the current and planned projects included in PBA 2050 that are in the vicinity of the Expenditure Authorization (EA) 04-0Q120 project limits.

Table 4-2: Current and Planned Projects Included in PBA 2050 That Are in the Vicinity of the EA 04-0Q120 Project Limits

Project ID	Nickname	Description	Price ($M)	Project Years
21-T06-016	Corridor Interchange Improvements | I-280 | San Francisco	Program includes interchange improvements at the Balboa Park BART Station	$27	2021–2035

Notes:
BART = Bay Area Rapid Transit
EA = Expenditure Authorization
I-280 = Interstate 280
ID = identification number
PBA = Plan Bay Area

Local Planning

SFCTA is responsible for long-range transportation planning for the city. SFCTA analyzes, designs, and funds improvements for San Francisco's roadway and public transportation networks. SFCTA administers and oversees the delivery of the Proposition K half-cent local transportation sales tax program. It also serves as the designated County Transportation Agency for San Francisco under State law and acts as the San Francisco Program Manager for grants from the Transportation Fund for Clean Air.

Future Projects

State Highway Operation and Protection Program

The State Highway Operation and Protection Program (SHOPP) is the State's "fix-it-first" program; it funds the repair and preservation of the State Highway System, safety improvements, and some highway operational improvements.

There are no current or planned SHOPP projects in the vicinity of the EA 04-0Q120 project limits.

California State Transportation Improvement Program

The California State Transportation Improvement Program (STIP) is the biennial 5-year program that the California Transportation Commission adopts for future allocations of certain State transportation funds for State highway improvements, intercity rail, and regional highway and transit improvements.

There are no current or planned STIP projects in the vicinity of the EA 04-0Q120 project limits.

4C. Traffic

Current and Forecasted Traffic

Table 4-3 lists the mainline traffic data for I-280 in San Francisco County within the project limits. Table 4-4 lists the mainline Traffic Index (TI) and Equivalent Single Axle Load (ESAL) information for I-280 in San Francisco County within the project limits. The 2022 traffic count data are derived from the Caltrans District 4 Office of Highway Operations count database. Future-year projections are calculated by the Office of Advance Planning (project-level forecasting) using traffic growth as determined by the Alameda County Transportation Commission (ACTC) Travel Demand Model. The ACTC model is based on land use projections from ABAG, which uses a suite of tools and in-house analytic models to develop a range of projections for employment, population, and household growth. MTC and ABAG are the two regional agencies that are primarily responsible for PBA 2050 (October 2021 update).

Table 4-3: Mainline Traffic Data for I-280 in San Francisco County: ADT Information

	Existing Traffic Volumes			2025 Construction Year Traffic Volumes (ADT)	2035 Design Traffic Volumes (ADT)	2045 Design Traffic Volumes (ADT)
Location*	Year	ADT	% Trucks			
SF-280–PM R0.0 to PM T7.543	2022	182,300	1.71	185,400	195,500	205,500

* Table refers to I-280 as 280 to be consistent with ABAG and MTC sources used to compile the table.

Notes:
ADT = Average Daily Traffic
I-280 = Interstate 280
PM = post mile
SF = San Francisco County

Table 4-4: Mainline TI and ESAL Information for I-280 from PM R0.0 to PM T7.543 in San Francisco County

	Calculated TI for all Lanes		ESAL	
Location*	10-year	20-year	10-year	20-year
Median lanes	8.5	9.0	558,000	1,146,000
Two right lanes	10.0	11.0	2,233,000	4,582,000

Notes:
ESAL = Equivalent Single Axle Load
I-280 = Interstate 280
PM = post mile(s)
TI = Traffic Index

Collision Analysis

The most-recent available 3-year collision data (April 1, 2019, to March 31, 2022) were extracted from the Caltrans collision database, the Transportation System Network–Traffic Accident Surveillance and Analysis System (TSN-TASAS).

Table 4-5 compares the actual TASAS Table B collision rates for I-280 in San Francisco County from PM R0.0 to PM T7.543 with the corresponding average collision rates for similar facilities statewide for the 3-year period April 1, 2019, to March 31, 2022.

Table 4-5: Comparison of Actual Collision Rates for I-280 from PM R0.0 to PM T7.543 with Average Collision Rates for Similar Facilities Statewide (April 1, 2019, to March 31, 2022)

Segment	Total Number of Collisions				Collision Rates (col/mvm)					
					Actual Collision Rates			Average Collision Rates for Similar Facilities Statewide		
	Total [1]	F	I	PDO	F	F + I	Total [1]	F	F + I	Total [1]
SF-280 PM R0.0 to PM T7.543	771	4	350	417	0.004	0.33	0.73	0.006	0.37	1.09

1. Total includes PDO collisions.

Notes:
col/mvm = collision(s) per million vehicle-miles
F = fatal collision(s)
I = injury collision(s)
I-280 = Interstate 280
PDO = property damage only collision(s)
PM = post mile(s)
SF = San Francisco County

Analysis of the TASAS Table B records for I-280 in San Francisco County from PM R0.0 to PM T7.543 shows a total of 771 collisions within the segment for the study period indicated in Table 4-. The actual fatal collision rate (F) and the actual fatal plus injury (F + I) collision rate are both below the corresponding average collision rates for similar facilities statewide. The actual total collision rate, which includes property damage only (PDO) collisions, is also below the corresponding average total collision rate for similar facilities statewide.

Detailed analysis per the TASAS Selective Accident Retrieval (TSAR) results generated on September 15, 2022, shows that the types of collisions for the 771 collisions within the segment of SF-280 from PM R0.0 to PM T7.543 were as follows:

- Rear end: 368 (47.7%)
- Sideswipe: 204 (26.5%)
- Hit object: 164 (21.3%)
- Overturn: 13 (1.7%)
- Auto-pedestrian: 8 (1.0%)
- Other: 8 (1.0%)
- Broadside: 3 (0.4%)

- Head-on: 3 (0.4%)

The TSAR results also showed that the primary collision factors for the 771 collisions within the segment of SF-280 from PM R0.0 to PM T7.543 were (in order of frequency):

- Speeding: 322 (41.8%)
- Other violations: 199 (25.8%)
- Improper turn: 137 (17.8%)
- Influence of alcohol: 63 (8.2%)
- Other than driver: 25 (3.2%)
- Follow too close: 7 (0.9%)
- Failure to yield: 7 (0.9%)
- Improper driving: 7 (0.9%)
- Unknown: 4 (0.5%)

The project segment was flagged in TASAS Table C in 2018. Table C identifies high collision frequency spot locations with either Type "A" (ALL) or Type "W" (WET) collisions where four or more significant collisions occurred within a 12-, 6-, or 3-month period. The traffic investigations required for this segment of I-280 were conducted with no recommendations for improvements.

5. ALTERNATIVES

5A. Viable Alternatives

The project has two viable alternatives: the Build Alternative and the No-Build Alternative.

This section discusses the Build Alternative.

Proposed Engineering Features

This is a multi-faceted project. The Build Alternative consists of five main elements: rigid pavement, flexible pavement, polyester overlay, Whipple Avenue POC, and curb ramps.

See Attachment B for a strip map of the work area and preliminary layouts. See Attachment D for the General Plans and Quantities–Structure. See Attachment E for

the Structure Preliminary Geotechnical Report. See Attachment F for the Hydraulic Recommendation.

1. Rigid Pavement

- Proposed work:
  - Individual slab replacement is recommended for the project. Replace the removed concrete slab to the same thickness with Rapid Strength Concrete (RSC) and the underlying base with Rapid Strength Concrete Base (RSCB).
  - Cold-plane a minimum of 0.15’ of existing AC shoulder. Resurface with 0.15’ of Rubberized Hot Mix Asphalt–Gap Graded (RHMA-G). If the existing AC shoulder layer is less than 0.15’ after cold planing, then cold-plane to the full depth.
  - Replace traffic striping, pavement markings, and markers as necessary.
- Locations:
  - From PM R0.0 to PM R3.7, at various spot locations to be determined during the PS&E phase.

2. Flexible Pavement

- Proposed work:
  - Cold-plane 0.25’ of existing AC pavement from travel lanes, shoulders, and connector/ramps. Resurface with two lifts, consisting of 0.10’ Hot Mix Asphalt, Type A (HMA-A) and 0.15’ of RHMA-G. If the existing AC layer is less than 0.15’ after cold planing, then cold plane to the full depth.
  - Replace traffic striping, pavement markings, and markers as necessary.
- Locations:
  - From PM R0.0 to PM R3.7, at mainline shoulders only
  - From PM R3.7 to PM R4.1 (mainline)
  - From PM R6.3 to PM R6.6 (This section to grind the existing concrete pavement.)
  - PM R0.0 southbound (SB) off-ramp to John Daly Boulevard
  - PM R0.9 NB on-ramp from San Jose Avenue
  - PM R0.9 SB off-ramp to San Jose Avenue

- PM R1.7 NB off-ramp to Geneva Avenue
- PM R1.7 SB on-ramp from Geneva Avenue (Additional drainage work will be needed at this location to solve flooding issues.)
- PM R1.7 NB on-ramp from Geneva Avenue
- PM R1.7 SB off-ramp to Geneva Avenue
- PM R1.8 NB on-ramp from Ocean Avenue
- PM R1.8 SB off-ramp to Ocean Avenue
- PM R2.7 NB off-ramp to San Jose Avenue
- PM R2.7 NB on-ramp from Monterey Boulevard
- PM R2.7 SB off-ramp to Monterey Boulevard
- PM R2.9 SB on-ramp from Bosworth Street
- PM R2.9 SB on-ramp from San Jose Avenue
- PM R3.5 NB off-ramp to Alemany Boulevard
- PM R3.5 SB off-ramp to Alemany Boulevard
- PM R3.9 NB on-ramp from Alemany Boulevard
- PM R3.9 SB on-ramp from Alemany Boulevard
- PM R5.9 NB off-ramp to Cesar Chavez Street
- PM R5.9 SB on-ramp from Pennsylvania Avenue
- PM R5.9 SB off-ramp to Pennsylvania Avenue
- PM R5.9 NB on-ramp from 25th Street
- PM R6.6 SB on-ramp from Mariposa Street
- PM R6.6 NB off-ramp to Mariposa Street
- PM R6.6 SB off-ramp to 18th Street / Pennsylvania Avenue
- PM T7.2 NB off-ramp to Brannan Street
- PM T7.2 SB on-ramp from Brannan Street
- PM T7.2 NB off-ramp to King Street

- PM T7.2 SB on-ramp from King Street

3. Polyester Overlay

- Proposed work:
  - Prepare the pavement by removing surface contaminants.
  - Repair the pavement if needed.
  - Roughen/grind the deck surface.
  - Apply primer to the prepared deck surface.
  - Apply polyester concrete overlays.
  - Allow the polyester concrete overlay to cure.
  - Replace traffic striping, pavement markings, and markers as necessary.
- Location:
  - Bridge 34-0046 (PM R4.40 to PM R6.39) (Upper and lower decks between spans 5 and 31)
    - PM R4.4 to PM R4.9 (lower deck only, this section to grind existing concrete pavement)

4. Whipple Avenue POC

- Proposed work:
  - Demolish the existing Whipple Avenue POC.
  - Replace the Whipple Avenue POC with a new POC built adjacent to the old alignment (see Attachment B for the preliminary Whipple Avenue POC layout). The proposed name of the new structure is the Farallones Street POC.
    - The Farallones Street POC will have a total length of 1,750 feet with a perpendicular horizontal alignment to the mainline below. The entrance and exit at the west side are the same as at the existing POC but the elevation is reduced at both the west side and the east side utilizing switchback ramps. The main span is 178 feet long with a 1.5% longitudinal slope. The switchback structure on the west side is 517 feet long with a 4% slope. The switchback structure on the east side is 1,055 feet long with a 6.5% slope. The switchback structures

can be bypassed with stairs, which decreases the total length of this option to approximately 440 feet.

- New POC inlets and downdrains are proposed to connect to a new proposed concrete-lined ditch or drainage inlets. Old drainage systems will be removed.

5. Curb Ramps

- See Attachment B for the preliminary curb ramp layouts.
- Upgrade curb ramps to current ADA standards at 29 locations.
- If necessary, relocate existing drainage inlets and reconnect to the existing drainage systems.

Nonstandard Design Features

The project will be designed in accordance with the standards in the seventh edition of the Caltrans Highway Design Manual (HDM), dated July 1, 2020. There are no new nonstandard design features proposed for the project.

Table 5-1 describes the existing nonstandard shoulder widths. Table 5-2 describes the existing nonstandard vertical clearances.

Upgrading the existing nonstandard shoulder widths to standard and increasing all the vertical clearances to standard (except at the Whipple Avenue POC) are beyond the purpose, need, and scope of the project. The District Design Liaison reviewed the project details and concurred that there is no need to prepare either a Design Standard Decision Document (DSDD) or an Existing Nonstandard Features to Remain: Memo to File (MTF).

Table 5-1: Existing Nonstandard Features to Be Maintained: Paved Shoulder Widths on Highways (Boldface Standard)

	HDM Topic 302.1 Paved Shoulder Widths on Highways (Left) (ft)		HDM Topic 302.1 Paved Shoulder Widths on Highways (Right) (ft)	
County-Route–PM	**Existing**	**Standard**	**Existing**	**Standard**
SF-280–PM R0.0/T7.543	0–10	10	0–8	10

Notes:
HDM = Highway Design Manual
SF = San Francisco County
PM = post mile(s)

Table 5-2: Existing Nonstandard Features to Be Maintained: Vertical Clearances (Boldface Standard)

County-Route–PM	HDM Topic 309.2(1)(a) Vertical Clearances (Major Structures) (ft)		HDM Topic 309.2(2) Vertical Clearances (Major Structures) (ft)	
	Existing	**Standard**	**Existing**	**Standard**
SF-280–PM R0.0/T7.543	14.5–19.0	16.5	0–8	14.5-19.0

Notes:
HDM = Highway Design Manual
SF = San Francisco County
PM = post mile(s)

Other nonstandard features may be present within the project limits. However, since the project only involves select scope items and the project is not proposing to introduce new nonstandard design features, the project will perpetuate the remaining roadway geometric design features within the project limits. This is consistent with Design Information Bulletin (DIB) 81-02 Minor Pavement Rehabilitation CAPM Guidelines.

Highway Planting and Irrigation

Dense mature trees and vegetation occur along most of the project corridor. Within the project limits, SF-280 is eligible for State Scenic Highway status, and from PM R0.0 to R4.7 and from PM R6.3 to PM R6.65, SF-280 is a Classified Landscaped Freeway.

To the extent feasible, the project will preserve and protect the existing landscape and irrigation. Thus, the project will locate staging and equipment storage areas outside of areas with mature vegetation, use exclusionary fencing or other similar protective measures around mature vegetation, and employ directional boring rather than open trenching within tree drip lines.

Demolition of the existing POC and construction of a new POC will cause notable localized damage to existing mature highway planting. In accordance with Caltrans Replacement Highway Planting Policy, replacement planting will be installed with a 1-year plant establishment period.

Erosion Control

Permanent erosion control measures will be implemented for the project to stabilize disturbed soil areas as a means of source control. These control measures may include use of hydroseed, hydromulch, fiber rolls, compost, or erosion control netting.

Bicycle and Pedestrian Access and Dedicated Facilities

The project proposes to replace the Whipple Avenue POC to meet seismic standards. The project will also upgrade the path of travel, including the pedestrian/bicyclist structure and its approaches and comply with ADA.

There are approximately 29 existing curb ramps along I-280 that the project will correct to meet current standards (see Attachment B for the preliminary layouts showing the curb ramps). The project also proposes to implement other crosswalk enhancements, including APSs, pedestrian countdown signals, restriping of crosswalks, and high-visibility crosswalk markings.

Efforts will be made to ensure that any permanent changes will not negatively affect existing nonmotorized access, connectivity, or comfort. During construction, funds will be allocated for notification measures to inform pedestrians and bicyclists of potential impacts, detours, and road closures.

Cost Estimate

The construction and right of way costs for the project have been estimated. These costs are summarized in Table 5-4. A detailed Preliminary Cost Estimate is provided as Attachment H.

Table 5-4: Preliminary Escalated Project Cost Estimate Summary: Build Alternative (2022)

Item	Estimated Cost
Roadway items	$30,640,000
Structure items	$52,318,000
Subtotal construction	$82,958,000
Right of way (escalated value)	$1,595,000
Total project capital outlay cost:	**$84,553,000**

Americans with Disabilities Act Compliance

There are two main components of the project that deal with the ADA. First, the replacement of the Whipple Avenue POC will eliminate a non-ADA-compliant (14%) grade. Second, the project will upgrade curb ramps at 29 locations adjacent to I-280 to bring them to ADA standards.

Traffic Safety

These safety recommendations are proposed for incorporation into the project where applicable:

- Replace all existing double metal beam barriers with either concrete barriers or, where applicable, thrie beam barriers.
- Replace all existing metal beam guardrails to current standards where applicable.
- Remove, relocate, or shield fixed objects within the clear recovery zone.

- Upgrade existing curb ramps to standard.
- Upgrade sign panels to current standards.
- Install APSs and pedestrian countdown timers on existing signal systems at the ramp termini.

5B. Rejected Alternatives

The No-Build Alternative will not accomplish the project purpose or meet the project need. The No-Build was carefully considered after the constraints and cost were developed and presented to SFMTA and at the D4 PAC on Oct 12, 2022. A community outreach also posed if a No-Build is desirable. The feedback received by all stakeholders rejected the No-Build alternative. Therefore, the No-Build Alternative was rejected.

The Whipple Avenue POC replacement had six alternatives that were eliminated before deciding on the Build Alternative discussed above (see Attachment I for the Rejected Alternative Layouts).

Alternative 1

Description

Alternative 1 has a total length of 1,736 feet with a horizontal alignment that is similar to that of the existing POC. The main span would be 236 feet long with a 5% longitudinal slope. There is no ramp on the west side (the San Jose Avenue side). The circular switchback structure on the east side (the side with the BART tracks) would be 1,500 feet long with a 7.8% slope. This alternative has the smallest footprint of all the alternatives.

Adverse Features

The following adverse features of Alternative 1 resulted in it being rejected:

- Alternative 1 is in the back of Cayuga Park, where a 40-foot tall retaining wall that supports I-280 and creates space for Cayuga Park would need to be eliminated, redesigned, and constructed to include a five-tier switchback.
- Building into Cayuga Park would require approval from the San Francisco Recreation and Parks Department and a formal Section 4(f) environmental approval.
- A five-tier switchback to obtain 67 feet of vertical gain is undesirable.
- A utility pole at the San Jose Avenue entrance to the POC would need to be relocated.

Summary

This alternative was rejected because it would be cost prohibitive and would obtrude into Cayuga Park, which the stakeholders would likely not support.

Alternative 2

Description

Alternative 2 has a total length of 1,716 feet with a similar horizontal alignment and entrance and exit at the west side as the existing POC. The main span would be 175 feet long with a 5% longitudinal slope. The ramp on the west side would be 116 feet long with a 5% slope. The switchback structure on the east side would be 1,425 feet long with a 7.8% slope. This alternative has the second-smallest footprint of all the alternatives.

Adverse Features

The following adverse features of Alternative 2 resulted in it being rejected:

- The first two adverse features noted for Alternative 1 would also apply to Alternative 2.
- The proposed switchback structure with a height of 63 feet is undesirable.
- The existing POC would only be kept open until just before the start of the construction at the west side entrance.

Summary

This alternative was rejected because it would be cost prohibitive and would obtrude into Cayuga Park, which the stakeholders would likely not support. The existing POC would also be out of service sooner under Alternative 2 than under Alternative 1.

Alternative 3 and Alternative 3A

Description

Alternative 3 has a total length of 1,785 feet with a skewed horizontal alignment and an entrance and exit at the west side, as with the existing POC, but with reduced elevations at both the west side and the east side that would use switchback ramps. The main span would be 175 feet long with a 5% longitudinal slope. The ramp on the west side would be 530 feet long with a 5% slope. The switchback structure on the east side would be 800 feet long with a 7.8% slope, and the ramp would be 280 feet with a 7.8% slope.

Alternative 3A, which is conceptual only, is included with Alternative 3 in consideration of the users that would traverse to Naglee Avenue at the front entrance

of Cayuga Park. The grades and connections for Alternative 3A were not fully enough developed to be considered as a feasible alternative. Both SFDPW and SFMTA inquired if the POC could land at Naglee Avenue via Alternative 3A. Per the July 21, 2022, meeting minutes, City agencies were informed that a Naglee Avenue aerial extension over Cayuga Park would likely not be possible due to community/neighborhood opposition; a high cost versus benefit ratio; uncertainty that BART would approve a structure beneath its operating right of way; and safety, noise, and vandalism concerns about providing a 24-hour available public access aerial structure over a park that is closed at night. Alternative 3A was shown at the front of an existing 40-foot tall retaining wall, but a cantilever pedestrian walkway cannot be attached to the existing face of the retaining wall. Further consideration would likely add an aerial structure beneath the BART structure, but this structure would be outside of the Caltrans right of way.

Adverse Features

The following adverse features of Alternatives 3 and 3A resulted in the alternatives being rejected:

- The first two adverse features noted for Alternative 1 would also apply to Alternatives 3 and 3A.
- The steep grade on the main span would require additional effort for users.

Summary

This alternative was rejected because it would be cost prohibitive and would obtrude into Cayuga Park, which stakeholders would likely not support. Alternative 3A is a concept only, not a fully developed alternative. Since the original concept was developed, Alternative 3A has been determined to be infeasible.

Alternative 4 and Alternative 4A

Description

Alternative 4 considers landing the POC on the west side at Broad Street and San Jose Avenue where the elevation difference is suitable to eliminate the need for a switchback structure on the west side. The total length is 1,250 feet. The main span would be 280 feet long with a 5% longitudinal slope. The ramp on the east side would be 970 feet long with an 8% slope.

Alternative 4A is the same concept as Alternative 4 except for the east side ramp design. The east ramp would be cut to 280 feet with a 7.8% slope and connected to a 1,125-foot long switchback structure. Alternative 4A was created to have an Alternative 4 design that has a lower slope and smaller land use.

Adverse Features

The following adverse features of Alternatives 4 and 4A resulted in the alternatives being rejected:

- Moving the connection west to Broad Street, closer to the Sagamore undercrossing is not advised and would not maintain the direct connection to transit (Muni M-Line) that exists at the current landing at Farallones Street.
- Broad Street is an uncontrolled intersection that has sight distance issues for approaching NB motorists and sight line issues for pedestrians trying to cross.
- The overcrossing is significantly long, and its slope is reaching the upper limit of allowable slope, which increases the risk of exceeding ADA-compliant grades during construction.
- It would be difficult to construct the switchback structure because of its height, and BART constraints would affect Alternative 4A.

Summary

These alternatives were rejected because there is no crosswalk at the uncontrolled intersection at Broad Street and San Jose Avenue and SFCTA, SFDPW, and SFMTA do not have plans to develop this intersection. Furthermore, moving the POC to Broad Street would not serve more people from this new location and would likely be less efficient for existing users who access from Farallones Street. Alternative 4A was eliminated because the switchback structure may give a less-desirable pedestrian experience.

Alternative 5

Description

Alternative 5 proposes to demolish the existing POC and build over the existing footprint. Alternative 5 has a total length of 1,880 feet, with a similar horizontal alignment and similar entrance and exit at the west side as the existing POC. The main span would be 180 feet long with a 5% longitudinal slope. The ramp on the east side would be 500 feet long with a 5% slope. The switchback structure on the east side would be 1,200 feet long with a 7.8% slope.

Adverse Features

The following adverse features of Alternative 5 resulted in it being rejected:

- The existing POC would not be able to be used while the new POC is being built.

- It would be difficult to construct a switchback structure that has a height of 54 feet.

Summary

This alternative was rejected because it would have the same constraints as the existing POC, and the existing POC wouldn't be in service during the construction, which could cause a loss of connection with the current POC users.

Alternative 6

Description

This POC alternative has a total length of 1,930 feet, with the same entrance and exit at the west side as the existing POC. The main span is 330 feet long with a 5% longitudinal slope. The ramp on the east side would be 660 feet long with a 5% slope. The ramp on the east side would be 940 feet long with an 8% slope. This horseshoe structure would provide the advantage of eliminating switchback structures and provide bicyclists and other wheeled devices with smoother geometry, although it may not be designed as a bike path or multi-use path.

Adverse Features

The following adverse features of Alternative 6 resulted in it being rejected:

- Alternative 6 is the second-longest alternative and would be twice the length of the existing POC.

- Alternative 6 also has the largest footprint of all the alternatives and would have a higher cost to build than the other alternatives.

- Pedestrian users may perceive the new POC to be a long route that would require them to travel out of direction.

Summary

This alternative was rejected because of both its actual length and its perceived length and because it would add more infrastructure over a greater footprint than the other alternatives, which would likely be perceived as undesirable.

6. CONSIDERATIONS REQUIRING DISCUSSION

6A. Hazardous Waste

A site investigation will be performed at the 65% PS&E phase to investigate the soil for levels of contaminants such as aerially deposited lead, other metals, and hydrocarbons. A survey for lead paint and asbestos materials that may be encountered during construction will be conducted at the Whipple Avenue POC. Hazardous waste

will also be generated from the removal of pavement markings, cold planing of the existing pavement, and the removal of treated wood waste. Suitable special provisions will be provided during the PS&E phase.

6B. Value Analysis

Caltrans has an established Value Analysis (VA) program that has adopted the principles and practices of value engineering to maintain compliance with federal law. Caltrans uses VA to continually improve the quality and return on the State's investments in infrastructure, foster innovation, and minimize the life-cycle costs of transportation projects.

A VA study is required for all projects on the National Highway System that use federal funds with a total project cost (construction, right of way, and support) of $50 million or more. Caltrans has their own lowered threshold of $25 million.

This project meets the federal requirements for a VA study.

The VA study for this project was conducted from October 17 to October 20, 2022. Six VA alternatives were developed to improve the project and one was selected. The accepted VA alternative is to implement cold in-place recycling (CIR) for the pavement rehabilitation. This alternative, along with the potential cost saving of $3,660,000 will be considered by the PDT in the Design phase.

The following five VA Alternatives were rejected:

- Eliminate the POC and have pedestrians cross under I-280 via Sickles Ave
- Construct the POC with precast panels for the ramps and precast girders for the main span
- Split the project into two separate contracts: one contractor for the POC and another contractor for the roadway
- Use A+B (also referred to as cost + time bidding) contract to incentivize the contractor to finish the project 4 months early
- Construct prefabricated steel ramps and a cable-stayed steel POC main span (no post)

6C. Resource Conservation

The project is anticipated to reuse material from the demolished POC for rough hardscape under the POC ramps to serve as a deterrent to the formation of encampments. During the PS&E phase, resource conservation will be revisited and revised as deemed appropriate.

6D. Right of Way

General

The Right of Way Data Sheet is provided as Attachment G.

The project will require Temporary Construction Easements (TCEs) as follows:

- A 15 foot wide 2,014 square foot TCE for a narrow sliver of property adjacent to the City of San Francisco access walkway from the existing POC to Alemany Boulevard will be needed.

- A TCE will be required from BART in two locations (10,574 square feet and 5,130 square feet).

Permits to Enter and Construct will be requested from the City of San Francisco in two locations; 9,946 square feet adjacent to San Jose Ave, and 3,482 square feet adjacent to Farallones St.

See Attachment J for the Right of Way Acquisition Layout.

Railroad Involvement

The project will require railroad involvement. Access to an existing BART easement will need to be coordinated to demolish the existing POC and construct the new POC. Right of way agreements with various railroad such as BART, MUNI and UPRR companies will be developed during the PS&E phase to coordinate the replacement of the POC and the other design elements within the railroad right of way corridors. Refer to Attachment G for the Right of Way Data Sheet for the anticipated cost of the railroad involvement. Table 5-3 lists the locations where railroad involvement will be needed.

Table 5-3: Locations with Railroad Involvement

Location	Details of Railroad Involvement
Whipple Avenue POC	
SF-280–PM R1.06	BART runs parallel to the existing and new POC ramps on the east side of the freeway.
SF-280 Mainline	
SF-280–PM 0.00/R 2.37	BART runs parallel with freeway (for 2.37 miles)
SF-280–PM R1.00/R1.46	Muni “M Ocean View” light rail runs parallel to the freeway (for 0.46 mile)
SF-280–PM R1.46	Muni “M Ocean View” light rail crosses above freeway (San Jose Avenue OC)
SF-280–PM R1.65	Muni “K Ingleside” light rail crosses above freeway (Ocean Avenue OC)
SF-280–PM R2.5/R2.7	Muni “J Church” light rail runs parallel to the freeway (for 0.2 mile)

Location	Details of Railroad Involvement
SF-280–PM R2.70	Muni "J Church" light rail crosses underneath the Southern Freeway Viaduct bridge structure (San Jose Avenue)
SF-280–PM R5.40	Caltrain and UPRR cross underneath the Southern Freeway Viaduct bridge structure
SF-280–PM R5.45/R5.75	Caltrain and UPRR run parallel to the freeway (for 0.3 mile)
SF-280–PM R5.90/T7.10	Caltrain and UPRR run underneath the freeway (for 1.20 miles)
SF-280–PM T7.10/T7.40	Caltrain and UPRR run parallel to the freeway (for 0.30 mile)
SF-280–PM T7.4	Caltrain and UPRR run underneath the bridge structure
Curb ramp upgrade	
Alemany Blvd. & SF-280 on-/off-ramps	BART runs over Alemany Blvd. (at five locations)
San Jose Avenue & Farallones Street	Muni "M Ocean View" light rail runs on San Jose Avenue (at four locations)
San Jose Avenue & Mt. Vernon Avenue	Muni "M Ocean View" light rail runs on San Jose Avenue (at three locations)
Geneva Avenue & SF-280 on-/off-ramps	Balboa Park BART station runs along Geneva Avenue (at eight locations)
Ocean Avenue & SF-280 on-/off-ramps	Muni "K Ingleside" light rail runs along Ocean Avenue (at five locations)
Pennsylvania Avenue & 18th Street	Caltrain and UPRR run underneath 18th Street (at four locations)
King Street & SF-280 on-/off-ramps	Caltrain, UPRR, and Muni Embarcadero light rail run along King Street (at two locations)

Notes:
BART = Bay Area Rapid Transit
Muni = San Francisco Municipal Transportation Agency
OC = overcrossing
PM = post mile(s)
POC = pedestrian overcrossing
SF = San Francisco County
UPRR = Union Pacific Railroad

Utility and Other Owner Involvement

Utility involvement may be required along San Jose Avenue. The use of a crane for the project may require that various overhead utilities be relocated and/or powered down (e.g., Pacific Gas and Electric Company [PG&E] utilities, communications utilities, cable). Relocated or powered down utilities would also impact the Muni metro train line (for details, see the Right of Way Data Sheet [Attachment G]).

6E. Environmental Compliance

The project is Categorically Exempt under Class 1 of the California Environmental Quality Act (CEQA) Guidelines and is Categorically Excluded under the National Environmental Policy Act (NEPA). The Categorical Exemption / Categorical Exclusion Determination Form was approved on December 7, 2022, and is provided as Attachment K.

Aesthetics/Visual

The landscape along I-280 within the project corridor is that of a densely developed urban environment with plentiful trees and vegetation. Development is primarily residential along the southern half of the corridor and mixed use along the northern half with more recent commercial and residential development infill between historical industrial development. The visual quality is moderate to moderate-high, with views of surrounding hills and wide, open sky along much of the corridor and panoramic views of the city skyline along the NB approach to downtown. SF-280 within the project limits is eligible for State Scenic Highway status, and from PM R0.0 to R4.7 and from PM R6.3 to R6.65 SF-280 is a Classified Landscaped Freeway.

Aesthetic concepts proposed for the retaining walls of the Farallones Street POC include birds in flight, trees, and wood stakes. See Attachment Q for the Landscape Architecture Aesthetics Design Concepts.

In addition to the avoidance and minimization measures included as project features and noted in "Highway Planting and Irrigation" and "Erosion Control" in Section 5A, the Visual Impact Assessment (VIA) includes the following project-specific avoidance and minimization measures:

- Where appropriate and consistent with adjacent highway infrastructure, aesthetic treatment (surface color and/or texture) will be applied to new concrete barriers, bridge rails, and retaining walls.

Water Quality

The project site is located within San Francisco Bay (Region 2) Regional Water Quality Control Board (RWQCB) & San Francisco County Municipal Separate Sewer & Stormwater System (MS4) limits. The disturbed soil area (DSA) in this project will be more than 1 acre and Risk Level will be 2. The project must comply with the conditions of the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit (No. CAS000002), Construction General Permit (No. 2009-0009- DWQ) & San Francisco Bay RWQCB Municipal NPDES Permit (No. R2-2009-0074).

To address the temporary water quality impacts resulting from the construction activities in this job site, the project would require preparation and adoption of a Storm Water Pollution Prevention Program (SWPPP). Additionally, the project would be required to file a Notice of Intent (NOI) before commencing any construction activities at the job site. Best Management Practices (BMPs) need to be implemented to address the temporary water quality impacts resulting from the construction activities in the project. BMPs should include the measures of soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, and waste management/materials pollution control. Appropriate BMPs and their quantities need to be developed during the PS&E phase. Incorporation of the

BMP measures outlined in the SWPPP "ensure proposed alternative would not adversely affect water quality in local waterways or groundwater quality.

This project may not require a Section 401 Water Quality Certification from the San Francisco Bay RWQCB or a Section 404 Nationwide Permit from the United States Army Corps of Engineers. If there is work in water bodies "temporary creek diversion system" and 401 certification will be anticipated, and specific requirements will be further determined during the PS&E phase. If significant amount of groundwater is encountered during deep excavations, dewatering will be required. For all these matters, early discussion shall be initiated with the Office of Water Quality. Groundwater testing as a part of the Hazardous Waste Site Investigation may be required to determine if contract provision is required for handling and disposal during construction.

The design pollution prevention (DPP) measures (permanent erosion control) may be required since DSA is more than 1 acre. This project may require not full trash capture devices since job sites within the project limits on I-280 are either low trash generation rating area or in rating is not available in the Significant Trash Generating Areas (STGA) map.

A Stormwater Data Report–Long Form has been prepared for the project (see Attachment L).

6F. Air Quality Conformity

The project is exempt from the requirement to determine air quality conformity per Title 40 Code of Federal Regulations (CFR) Section 93.126 (Table 2–Exempt projects: Pavement resurfacing and/or rehabilitation). Therefore, an air quality study is not required.

6G. Title VI Considerations

Under Title VI of the Civil Rights Act of 1964, Caltrans ensures that

> "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Related federal statutes and State law further these protections to include sex, disability, religion, sexual orientation, and age.

Caltrans recognizes its leadership role and unique responsibility in State government to eliminate transportation barriers that have divided communities and amplified racial inequities. Caltrans is committed to provide more equitable transportation for all Californians by creating more transparent, inclusive, and ongoing consultation and collaboration processes and engaging with the communities most impacted by structural racism in transportation decision-making, policies, processes, planning,

design, and construction. Caltrans is also committed to increase pathways to opportunity for minority-owned and disadvantaged business enterprises and for individuals who face systemic barriers to employment. The goal is to create a more resilient transportation system that distributes the benefits and burdens of the system more equitably to the current and future generations of Californians.

6H. Noise Abatement Decision Report

This project does not qualify as either a Type I or a Type II project under 23 CFR 772. Noise abatement need not be considered, and a noise study report is not required.

6I. Life-Cycle Cost Analysis

A Life-Cycle Cost Analysis is not required for the project because no applicable pavement work will be done on the State Highway System.

6J. Reversible Lanes

This project does not qualify as a capacity-increasing or a major street or highway realignment project, so reversible lanes need not be considered.

7. OTHER CONSIDERATIONS AS APPROPRIATE

Public Hearing Process

A public hearing has not been planned for the project, as the Environmental Document is a Categorical Exemption / Categorical Exclusion Determination Form, which does not require a public hearing. Once the PR is approved, a Notice of Exemption (NOE) will be filed with the State Clearinghouse. The NOE will serve as public notice that the project is exempt from CEQA. In addition, an extensive public engagement effort has been established through a number of virtual and in-person public outreach meetings held during project development (see discussion in Section 3 under “Community Interaction”).

Caltrans Equity Statement

State departments of transportation are bound by law to consider the needs of residents with low incomes, communities of color, people with limited English proficiency, seniors, the disabled, and other communities and individuals when developing transportation plans. Caltrans acknowledges that communities of color and underserved communities have experienced fewer of the benefits and a greater share of the negative impacts associated with the California Transportation System. Some of these disparities reflect a history of transportation decision-making, policy, processes, planning, design, and construction that often put up barriers, divided communities, and amplified racial inequities, particularly in disadvantaged neighborhoods. Caltrans recognizes its leadership role and unique responsibility to eliminate barriers and provide more equitable transportation for all Californians. This

understanding is the foundation for intentional decision-making that recognizes past, stops current, and prevents future harms from our actions. Furthermore, Caltrans is developing public outreach methodologies to increase participation by disadvantaged community members and local community-based organizations to ensure that they have a voice in projects that affect their communities.

No Community Impact Assessment was prepared for the project, but the impact of the proposed improvements on the general public and specific communities will likely be an overall improvement in the ride quality on I-280 and improved accessibility of the new Farallones Street POC.

Environmental Justice

Information used to identify potential Environmental Justice issues is documented in corridor plans so that transportation projects ensure the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income. This approach applies to the scope of a project from the early stages of transportation planning and investment decision making through construction, operations, and maintenance. Title VI of the Civil Rights Act of 1964 states that "[n]o person in the United States shall, on the grounds of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Executive Order 12898, issued in 1994, gave a renewed emphasis to Title VI and added low-income populations to those protected by the principles of Environmental Justice. There are three fundamental principles at the core of Environmental Justice:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations

- To ensure the full and fair participation of all potentially affected communities in the transportation decision-making process

- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations

Caltrans identified Environmental Justice communities near the project area in San Francisco County (City of San Francisco), including the Ingleside, Outer Mission, Oceanview, Portola, and Silver Terrace districts. The construction activities and proposed improvements for the project will not result in negative impacts to the environment. The project will use BMPs to implement mitigation to minimize GHG emissions during construction. Replacement of the Whipple Ave POC with an ADA-compliant overcrossing will maintain and improve access to multi-modal transit opportunities within and between identified communities.

California Climate Change Investment Priority Populations

According to SB 535, disadvantaged communities are disproportionately affected by environmental pollution, low income, high unemployment, low levels of home ownership, high rent burden, sensitive populations, and low levels of educational attainment. In Assembly Bill (AB) 1550, low-income communities are defined as census tracts with median household incomes at or below 80 percent of the statewide median income or with median incomes at or below the threshold designated as low income by the US Department of Housing and Urban Development. Both SB 535 and AB 1550 have a formula to direct that a percentage of State GHG-reduction funds be invested in disadvantaged and low-income communities.

Caltrans identified the following SB 535 and AB 1550 communities within the project limits in San Francisco County (City of San Francisco): Portola, and Silver Terrace districts. The construction activities and proposed improvements for the project will not result in negative impacts on the environment. The project will use BMPs to implement mitigation to minimize GHG emissions during construction.

Equity Priority Communities

MTC's Equity Priority Communities (EPCs) index is based on eight American Community Survey (ACS) 2014–2018 tract-level variables. The development of MTC's EPCs index was a part of the Equity Framework within the Regional Transportation Plan. That framework includes equity measures to analyze scenarios and define disadvantaged communities. The eight ACS variables are minority populations, low-income areas, less-English-proficient populations, seniors (age 75 and older), zero-vehicle households, single-parent households, people with disabilities, and rent-burdened households. EPCs within the Regional Transportation Plan area are rated at High and Highest levels of concern, meaning these communities are burdened by multiple socioeconomic factors.

The project vicinity areas most identified as Equity Priority Communities (EPCs) 2018 with ACS 2016 (between High and Higher) are at the following locations:

- SF-280–PM R0.0/R1.4 (Ingleside, Outer Mission, and Oceanview districts of the City of San Francisco)

- SF-280–PM R4.3/R4.8 (Portola and Silver Terrace districts of the City of San Francisco)

The impact of the proposed project improvements to the general public and specific communities will likely be an overall improvement in the ride quality on I-280 and improved accessibility of the new Farallones Street POC.

Route Matters

The project does not involve freeway agreements, new connections, route adoptions, or relinquishments, so route matters are not applicable.

Permits

It is anticipated that the project will not require new permits for the project but will comply with existing permits such as the NPDES Permit (No. CAS000002), Construction General Permit (No. 2009-0009- DWQ) and San Francisco Bay RWQCB Municipal NPDES Permit (No. R2-2009-0074).

Cooperative Agreements

A cooperative agreement is not needed with any external agencies or parties on this project.

Other Agreements

The replacement of the POC will not require modifications to any existing freeway agreements with the City and County of San Francisco.

Report on Feasibility of Providing Access to Navigable Rivers

The project does not involve any new bridge construction; thus, a report on the feasibility of providing access to navigable rivers is not applicable.

Public Boat Ramps

The project does not involve any new bridge construction; thus, public boat ramps are not applicable.

Transportation Management Plan

A detailed TMP will be developed for the project during the PS&E phase. The project will require lane closures. Full closures are also anticipated; thus, detours will be needed. With full closures and detours, the highest-level TMP (Major TMP) will need to be developed. A Major TMP may include the full spectrum of strategies, including lane requirement charts, special provisions for unique project characteristics, a large-scale public awareness campaign (with brochures, public meetings, a project website, a telephone hotline), Construction Zone Enhanced Enforcement Program (COZEEP) services, Freeway Service Patrol (FSP), detours to alternate highways or surface streets, and special arrangements with local transit services to accommodate a significant increase in ridership.

The current Transportation Management Plan Data Sheet includes various strategies such as providing public information, using portable changeable message signs (CMSs), implementing a COZEEP), and maintaining traffic to improve mobility and safety for the traveling public and highway workers.

For more details, refer to the Transportation Management Plan Data Sheet (see Attachment M).

Stage Construction

Project staging will consist of Standard Temporary Traffic Control System plans that will involve lane, shoulder, and ramp closures during nonpeak hours. Appropriate temporary barriers and temporary crash cushions will be installed for the replacement of the Whipple Avenue POC.

The location of the Whipple Avenue POC makes the demolition of the existing overcrossing and construction of the new POC a difficult process. The existing POC spans 10 lanes of I-280 and terminates at the west and east sides of the highway with paths and ramps on very steep terrain. Also, the POC structure is blocked on the east side by the BART structure and active businesses.

A preliminary stage construction was prepared to show possible construction phases and identify full I-280 closures needed with associated activities. This stage construction plan will be further developed during PS&E (see Attachment N for the Stage Construction Layout).

Constructability will be addressed in partnership with BART and the plan will be communicated with the community to the extent possible as the project proceeds towards construction.

Accommodation of Oversize Loads

The project will not result in any additional temporary or permanent restrictions on the movement of oversize loads.

Graffiti Control

The project is in a county that has been identified as graffiti prone. Lighting, textures and/or anti-graffiti coatings are planned to deter and address this issue for the POC retaining walls. All washing runoff from anti-graffiti treatment needs to be captured.

During the PS&E phase, graffiti and vandalism control measures will be revisited. Design and graffiti abatement plans will be revised as deemed appropriate.

Asset Management

Director’s Policy 35 (DP-35) calls for maximizing the effectiveness of transportation investments through performance-driven Asset Management in conformance with 23 CFR Part 515 and Section 14526 of the California Government Code. Per DP-35, Caltrans is required to determine the most effective way to apply its available resources to benefit the condition and performance of the State Highway System and its assets. This requirement is achieved by a robust Asset Management program and is implemented through the various Asset Management plans, including the State Highway System Management Plan and the District Performance Plans.

The project has been initiated, developed, and programmed in alignment with the Caltrans Asset Management plans. In the PA&ED phase, efforts have been made to meet or surpass the performance of the project at the programming milestone (Milestone 015). Table 7-1 presents the currently programmed performance measures for the project from the Programming Nomination (PRG) section of the Asset Management Tool (AMT).

Table 7-1: Currently Programmed Performance Measures for the Project

Activity Detail	Unit of Measurement	Quantity	Assets in Good Condition	Assets in Fair Condition	Assets in Poor Condition	New Asset Added
Bridge Preservation (201.119)	Square Feet	2,281,670	—	2,281,670	—	—
Bridge Replacement / New Construction (201.110, 201.111, 201.113, 201.322)	Square Feet	6,001	—	—	6,000	1
Fish Passage	Yes/No	No	—	—	—	—
Number of Bridges	Each	2	—	—	—	—
Existing Ramps & Connectors (201.121, 201.122, 201.120)	Lane Miles	50,000	—	—	50,000	—
Existing Shoulders (201.121, 201.122, 201.120)	Square Feet	500,000	—	—	—	—
Asphalt Pavement Minor Rehabilitation (CAPM)	Lane Miles	0.752	—	0.752	—	—
Concrete Pavement Minor Rehabilitation (CAPM)	Lane Miles	34.227	13.554	20.673	—	—
Median Barrier (201.010, 201.015)	Linear Feet	6,255	—	—	6,255	—
Crash Cushions (201.010, 201.015)	Each	10	—	6	3	1
Changeable Message Sign (201.315)	Each	1	—	—	—	1
ADA – Repair/ Upgrade Curb Ramp (201.361)	Each	31	—	—	31	—
ADA - Deficient Elements	Deficient Elements	31	—	—	31	—

Activity Detail	Unit of Measurement	Quantity	Assets in Good Condition	Assets in Fair Condition	Assets in Poor Condition	New Asset Added
TMS Structure Component	Each	1	—	—	—	1
TMS Technology Component	Each	1	—	—	—	1
Erosion Control (201.210)	Acres	2.2	—	—	2.2	—
Planting (Irrigated)	Acres	6	—	—	6	—
Worker Safety - Safe Access	Locations	2	—	—	2	—
Worker Safety - Barriers	Locations	4	—	—	4	—
Worker Safety - Miscellaneous Paving/Treatment	Locations	10	—	—	10	—
Worker Safety - Miscellaneous Facilities and Equipment (201.235)	Locations	13	—	—	13	—
Led Lighting	Each	20	—	—	—	—
Overpass/Underpass -Pedestrian & Bike	Each	1	—	—	1	—
Is any Location Within the Project Limits Ped/Bike Accessible?	Yes/No	Yes	—	—	—	—
Total Maximum Daily Load Mitigation (Stormwater Mitigation) (201.335)	Acres	20	—	—	20	—
Quantitative - Proposed Mitigated	MTCO2e	81	—	—	—	—
Quantitative - Unmitigated	MTCO2e	100	—	—	—	—

Notes:
— = not applicable
ADA = Americans with Disabilities Act
CAPM = Capital Preventive Maintenance

Table 7-2 presents the proposed performance measures for the project from the Post-Programming Changes (PPC) section of the AMT.

Table 7-2: Proposed Performance Measures for the Project

Activity Detail	Unit of Measurement	Quantity	Assets in Good Condition	Assets in Fair Condition	Assets in Poor Condition	New Asset Added
Bridge Preservation (201.119)	Square Feet	2,358,523	—	2,358,523	—	—
Bridge Replacement / New Construction (201.110, 201.111, 201.113, 201.322) (Bridge and Tunnel Health, Bridge Scour Mitigation	Square Feet	20,898	2,314	—	—	18,584
Bridge Replacement / New Construction (201.110, 201.111, 201.113, 201.322) (Bridge Seismic Restoration, Bridge Goods Movement Upgrades)	Square Feet	20,898	—	—	2,314	18,584
Number of Bridges	Each	2	—	—	—	—
Fish Passage Not in the Priority List	Each	—	—	—	—	—
Fish Passage in the Priority List	Each	—	—	—	—	—
Existing Ramps & Connectors (201.121, 201.122, 201.120)	Lane Miles	50,000	—	—	50,000	—
Existing Shoulders (201.121, 201.122, 201.120)	Square Feet	500,000	—	—	—	—
Asphalt Pavement Minor Rehabilitation (CAPM)	Lane Miles	0.752	—	0.752	—	—
Concrete Pavement Minor Rehabilitation (CAPM)	Lane Miles	34.227	13.554	20.673	—	—
Median Barrier (201.010, 201.015)	Linear Feet	6,255	—	—	6,255	—
Crash Cushions (201.010, 201.015)	Each	10	—	6	3	1

Activity Detail	Unit of Measurement	Quantity	Assets in Good Condition	Assets in Fair Condition	Assets in Poor Condition	New Asset Added
Changeable Message Sign (201.315)	Each	1	—	—	—	1
ADA – Repair/ Upgrade Curb Ramp (201.361)	Each	31	—	—	31	—
ADA - Deficient Elements	Deficient Elements	31	—	—	31	—
TMS Structure Component	Each	1	—	—	—	1
TMS Technology Component	Each	1	—	—	—	1
Erosion Control (201.210)	Acres	2.2	—	—	2.2	—
Planting (Irrigated)	Acres	6	—	—	6	—
Worker Safety - Safe Access	Locations	2	—	—	2	—
Worker Safety - Barriers	Locations	4	—	—	4	—
Worker Safety - Miscellaneous Paving/Treatment	Locations	10	—	—	10	—
Worker Safety - Miscellaneous Facilities and Equipment (201.235)	Locations	13	—	—	13	—
Led Lighting	Each	20	—	—	—	—
Overpass/Underpass -Pedestrian & Bike	Each	1	—	—	1	—
Is any Location Within the Project Limits Ped/Bike Accessible?	Yes/No	Yes	—	—	—	—
Total Maximum Daily Load Mitigation (Stormwater Mitigation) (201.335)	Acres	20	—	—	20	—
Quantitative - Proposed Mitigated	MTCO2e	81	—	—	—	—

Activity Detail	Unit of Measurement	Quantity	Assets in Good Condition	Assets in Fair Condition	Assets in Poor Condition	New Asset Added
Quantitative - Unmitigated	MTCO2e	100	—	—	—	—

Notes:
— = not applicable
ADA = Americans with Disabilities Act
CAPM = Capital Preventive Maintenance

See Attachment O for the performance measures for the PRG and PPC sections of the AMT.

Complete Streets

Director's Policy DP-37 ensures that all transportation projects funded or overseen by Caltrans will provide comfortable, convenient, and connected Complete Streets facilities for people traveling by walking, biking, or taking transit or passenger rail.

The following will be included during the PS&E phase:

- Replace the Whipple Avenue POC with a seismically updated and ADA-compliant structure.
- Upgrade curb ramps to standard.
- Restripe existing crosswalks and upgrade school crossings with high-visibility crosswalks.
- Install APSs and pedestrian countdown timers on existing signal systems at the ramp termini.

Climate Change Considerations

Construction-Related Greenhouse Gas Emissions

Construction-generated GHG emissions include emissions resulting from material processing by on-site construction equipment, workers commuting to and from the project site, and traffic delays due to construction. The emissions will be produced at different rates throughout the project depending on the activities undertaken at the various phases of construction. The analysis focused on vehicle-emitted GHGs. Carbon dioxide (CO_2) is the single most important GHG pollutant due to its abundance relative to the other vehicle-emitted GHGs, including methane (CH_4), nitrous oxide (N_20), hydrofluorocarbons, and black carbon.

Based on the project information available for environmental studies, the construction-related GHG emissions were calculated using the Construction Emissions Tool 2020 (CAL-CET 2020), version 1.0, developed by Caltrans. It was

estimated that for construction of the project, the total amount of CO_2 produced due to construction would be 2,863 tons.

Table 7-3 summarizes the construction-related emissions, including the total carbon dioxide equivalent (CO2e) emissions.

Table 7-3: Summary of Construction-related GHG Emissions

Project Location: San Francisco County on Interstate 280, PM 0.0/7.5	Parameters		Project Total	
	CO_2 (tons)	CH_4 (tons)	N_2O (tons)	CO_2e (metric tons)*
Total emissions	2,863	0.087	0.162	2,644

* Gases are converted to CO_2e by multiplying by their GWP. Specifically, GWP is a measure of how much energy the emission of 1 ton of a gas will absorb over a given period relative to the emission of 1 ton of CO_2.

Notes:
CH_4 = methane
CO_2 = carbon dioxide
CO_2e = carbon dioxide equivalent
GHG = greenhouse gas
GWP = global-warming potential
N_2O = nitrous oxide
PM = post mile(s)

Because construction activities are short term, the GHG emissions resulting from construction activities will not result in long-term adverse effects. Implementation of the Caltrans Standard Specifications, such as complying with the air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, and the use of construction BMPs will reduce GHG emissions from construction activities. The construction BMPs will include (but are not limited to):

- Perform regular vehicle and equipment maintenance.
- Limit idling of vehicles and equipment on-site.
- If practicable, recycle nonhazardous waste and excess material; if such recycling is not practicable, properly dispose of the nonhazardous waste and excess material.
- Use solar-powered signal boards, if feasible.

With innovations such as longer pavement lives, improvements in traffic management, and changes in materials used, construction-related GHG emissions can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

Sea Level Rise

The project is on I-280, which is partially adjacent to the San Francisco Bay estuary. This area is vulnerable to Sea Level Rise (SLR). According to the SLR viewer from the National Oceanic and Atmospheric Administration (NOAA), which is available at

http://coast.noaa.gov/slr, the project vicinity areas most susceptible to SLR (between 1 foot and 5 feet) are at the following locations:

- SF-280–PM R5.2/R5.6
- SF-280–PM T7.2/T7.5

The improvements needed for the roadway and structures to address SLR are beyond the scope and funding allocated for the project.

Broadband and Advanced Technologies

As outlined in California Streets and Highways Code, Chapter 2, Section 2030(d), where feasible, Caltrans shall use advanced technologies and communications systems in transportation infrastructure that recognize and accommodate advanced automotive technologies.

Pursuant to AB 1549 (2016) and Caltrans Deputy Directive (DD)-116, collaboration between Caltrans and agencies working on broadband deployment is encouraged and when feasible, plans for additional wired broadband facilities are accommodated.

The proposed improvements for the project will not impact the accommodation of wired broadband facilities, fueling for zero-emission vehicles, or provisions for infrastructure-to-vehicle communications for transitional or fully autonomous vehicles. The project limits do fall within the Middle-Mile Broadband Initiative (MMBI) network and if opportunities arise where there is to efficiently deliver proposed scope for this project and MMBI scope, it will be investigated during PS&E.

Project Split

Consideration will be made during PS&E to split this project into multiple projects. Logical split of the project would be by the type of work such as rigid pavement work, flexible pavement work, polyester overlay, replacement of the POC, and curb ramps/APS. A Project Change Request (PCR) will be prepared during PS&E to show the details of the split.

8. FUNDING, PROGRAMMING, AND ESTIMATE

Funding

It has been determined that the project is eligible for federal-aid funding. The project is anticipated to be funded under 20.XX.201.121 (Pavement Rehabilitation) and 20.XX.201.XXX (SHOPP - G13 Contingency). The proposed funding fiscal year for the project is 2023/24.

Programming

The project was programmed on June 24, 2020, into the 2020 SHOPP under program code 20.XX.201.121 (Pavement Rehabilitation) and 20.XX.201.XXX (SHOPP - G13 Contingency) for the 2023/24 fiscal year. The specific existing and proposed programmed amounts for the project are shown in the following two tables.

Existing Programmed Amounts

Fund Source	Fiscal Year Estimate								
20.XX.201.121	Prior	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Future	Total
Component	In thousands of dollars ($1,000)								
PA&ED Support	—	—	4,101	—	—	—	—	—	4,101
PS&E Support	—	—	—	6,682	—	—	—	—	6,682
Right of Way Support	—	—	—	322	—	—	—	—	322
Construction Support	—	—	—	—	—	—	—	—	—
Right of Way	—	—	—	—	—	1,373	—	—	1,373
Construction	—	—	—	—	—	—	—	—	—
Fund Source	Fiscal Year Estimate								
20.XX.201.XXX-SHOPP-G13 Contingency	Prior	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	Future	Total
Component	In thousands of dollars ($1,000)								
PA&ED Support	—	—	—	—	—	—	—	—	—
PS&E Support	—	—	—	—	—	—	—	—	—
Right of Way Support	—	—	—	—	—	—	—	—	—
Construction Support	—	—	—	—	—	9,877	—	—	9,877
Right of Way	—	—	—	—	—	—	—	—	—
Construction	—	—	—	—	—	82,958	—	—	82,958
Total:	—	—	4,101	7,004	—	94,208	—	—	105,313

Notes:
— = not applicable
G13 Contingency = not fully guaranteed funds
PA&ED = Project Approval and Environmental Document
PS&E = Plans, Specifications, and Estimate

The existing programmed support cost ratio (total support cost divided by total construction cost) is 25.3%.

Proposed Programmed Amounts

Fund Source	Fiscal Year Estimate								
20.XX.201.121	Prior	2019/ 20	2020/ 21	2021/ 22	2022/ 23	2023/ 24	2024/ 25	Future	Total
Component	In thousands of dollars ($1,000)								
PA&ED Support	—	—	4,101	—	—	—	—	—	4,101
PS&E Support	—	—	—	6,682	—	—	—	—	6,682
Right of Way Support	—	—	—	386	—	—	—	—	386
Construction Support	—	—	—	—	—	—	—	—	—
Right of Way	—	—	—	—	—	1,595	—	—	1,595
Construction	—	—	—	—	—	—	—	—	—
Fund Source	Fiscal Year Estimate								
20.XX.201.XXX-SHOPP-G13 Contingency	Prior	2019/ 20	2020/ 21	2021/ 22	2022/ 23	2023/ 24	2024/ 25	Future	Total
Component	In thousands of dollars ($1,000)								
PA&ED Support	—	—	—	—	—	—	—	—	—
PS&E Support	—	—	—	—	—	—	—	—	—
Right of Way Support	—	—	—	—	—	—	—	—	—
Construction Support	—	—	—	—	—	9,877	—	—	9,877
Right of Way	—	—	—	—	—	—	—	—	—
Construction	—	—	—	—	—	82,958	—	—	82,958
Total:	—	—	4,101	7,068	—	94,430	—	—	105,599

Notes:
— = not applicable
G13 Contingency = not fully guaranteed funds
PA&ED = Project Approval and Environmental Document
PS&E = Plans, Specifications, and Estimate

The proposed support cost ratio (total support cost divided by total construction cost) is 25.4%.

Estimate

A Preliminary Cost Estimate has been prepared for the project (see Attachment H). The current escalated construction capital cost estimate is $82,958,000.

Further development of the Whipple Avenue POC replacement design since the PIR has resulted in additional TCE requirements which slightly increased the Right of Way Capital and Right of Way Support costs.

9. DELIVERY SCHEDULE

The following table lists the project milestones, their dates, and their designations.

Project Milestones		Milestone Date	Milestone Designation
APPROVE PID	M010	08/12/2019	Actual
PROGRAM PROJECT	M015	06/24/2020	Actual
BEGIN ENVIRONMENTAL	M020	05/03/2022	Actual
PA&ED	M200	10/14/2022	Target
BEGIN STRUCTURE	M215	07/29/2022	Target
CIRCULATE PLANS IN DISTRICT	M300	07/23/2023	Target
PS&E TO DOE	M377	12/03/2023	Target
DRAFT STRUCTURES PS&E	M378	01/02/2024	Target
PROJECT PS&E	M380	02/02/2024	Target
RIGHT OF WAY CERTIFICATION	M410	05/02/2024	Target
READY TO LIST	M460	06/01/2024	Target
FUND ALLOCATION	M470	10/01/2024	Target
HEADQUARTERS ADVERTISE	M480	12/01/2024	Target
AWARD	M495	01/10/2025	Target
APPROVE CONTRACT	M500	03/02/2025	Target
CONTRACT ACCEPTANCE	M600	03/01/2028	Target
END PROJECT EXPENDITURES	M800	05/01/2029	Target
FINAL PROJECT CLOSEOUT	M900	11/01/2030	Target

Notes:
DOE = District Office Engineer
M = milestone
PA&ED = Project Approval and Environmental Document
PID = Project Initiation Document
PS&E = Plans, Specifications, and Estimate

10. RISKS

A Level 2 Risk Register has been prepared to identify the various project management, design, construction, and right of way risks that could affect the Design and Construction phases of the project. Each risk is given a probability, a cost impact, time impact ratings, and risk response actions. Some of the risks with the higher impact scores are listed below.

- Risk ID #3, 4 (Coordination with outside agency): The POC portion of this project requires close coordination with BART regarding hours of construction near BART structures and construction clearances. This requirement could increase the number of construction days and increase cost. In addition, a series of submittals will be provided to BART for their review and concurrence, which could delay the schedule depending on the timing that BART proposes for returning its comments to Caltrans.

  Developing a good and close relationship with BART early in the project will be key to ensure that agreements are made between the two agencies and to provide BART with detailed information regarding the POC portion of the project (to reduce the number of comments from BART).

- Risk ID # 9 (Right of way/private property): A Spanish Cultural Center, a private property, is adjacent to the project site and has been identified as a site for which a TCE would be needed for the duration of the project. However, the property owner may not come to an agreement with the State, which could trigger a CTC action and impact the project delivery schedule.

  The PDT will need to obtain verification of temporary construction easements and rights of way and initiate the process during the PS&E phase.

- Risk ID #11 (Traffic Management): Full and partial closures are needed on I-280 to demolish the existing POC as well as erect and take down falsework. Large diameter median CIDH and column construction will need lane reconfiguration.

  To mitigate this risk, the construction team will follow the TMP, utilize COZEEP, and balance daytime/nighttime work.

- Risk ID #21 (CIDH Piles and Tie-Back Construction Risk): Drilling large CIDH piles have inherent soil situations like voids or unexpected ground water which will cause change orders. Tie-Back operations to fill material may encounter construction changes inherent to the operations.

  During PS&E, soil test boring results will be analyzed to avoid high risk areas if possible and contingency funds will also be set aside for construction.

For more details, refer to the Risk Register (Attachment P).

11. EXTERNAL AGENCY COORDINATION

Federal Highway Administration

The project has not been identified as a Project of Division Interest; thus, it is a Delegated Project in accordance with the current Stewardship and Oversight Agreement on Project Assumption and Program Oversight by and between the Federal Highway Administration (FHWA) California Division and Caltrans (dated May 28, 2015).

Other Agencies

The project requires the following coordination:

- San Francisco Department of Public Works
  - Maintenance Agreement on POC and ramps
- San Francisco Municipal Transportation Agency

- Traffic Detours on local streets
- Onramp and offramp closures
- Jobsite access and coordination with Muni (guy wires)

- San Francisco Public Utility Commission
  - Coordination with shutoff of existing power during POC demolition and new lighting

- Local Agency: BART
  - The project team will have focused constructability meetings with BART where possible actions could result in reduced rail service to demolish and build the new switchback structure, where reduced rail service could result in alternative bus services. A cooperative agreement could be executed to transfer funds for those services.

- Railroads
  - Various railroad agreements for at-grade or separated-grade crossings with BART, MUNI, and the Union Pacific Railroad

12. PROJECT REVIEWS

Table 12-1 lists the project reviews by type, reviewer(s), and date of review.

Table 12-1: Project Reviews by Type, Reviewer(s), and Date of Review

Type of Review	Reviewer(s)	Date of Review
District SHOPP Pavement Program Advisor	Robert Camargo	11/02/2022
District SHOPP Bridge Program Advisor	Hubert Wong	09/23/2022
Headquarter SHOPP Pavement Program Advisor	Iqbal Arshad	09/13/2022
Headquarters SHOPP Bridge Program Advisor	Ramon Reyes	10/21/2022
District Maintenance	Monique Nguyen	09/09/2022
Headquarters Project Delivery Coordinator	Armando Lee (acting)	09/13/2022
Project Manager	Al B. Lee	09/11/2022
FHWA	Lanh Phan	09/13/2022
District Safety Review	Haixiong Xu	09/13/2022
Constructability Review	Robert Kobal	09/13/2022

Notes:
FHWA = Federal Highway Administration
SHOPP = State Highway Operation and Protection Program

13. PROJECT PERSONNEL

Table 13-1 lists the project personnel by name, title/office, and telephone number.

Table 13-1: Project Personnel by Name, Title/Office, and Telephone Number

Name	Title/Office	Telephone Number
Robert Camargo	District SHOPP Pavement Program Advisor	(510) 219-8435
Hubert Wong	District SHOPP Bridge Program Advisor	(510) 506-3963
Al B. Lee	Project Manager	(510) 715-8663
Bradford Silva / Khodayar Maboudi	Assistant Project Managers	(510) 914-9850 / (415) 568-6949
James Hsiao	Design Office Chief	(510) 286-5080
Tin Win	Design Senior	(510) 496-9279
Van Hew	Project Engineer	(510) 362-6092
Arielle Palanca	Assistant Project Engineer	(510) 421-6974
Gregory Pera	Biology	(510) 459-1783
Kenneth Xu	Electrical Design Office Chief	(510) 286-4765
Parviz Boozarpour	Electrical Design Senior	(510) 286-4772
Nabeel Alkhatib	Electrical Design Engineer	(510) 286-6137
Tim Pokrywka	Geotechnical Office Chief	(510) 286-4840
Sungro Cho	Geotechnical Senior	(805) 217-5766
Kanax Kanagalingam	Geotechnical Engineer	(510) 246-7013
Stephan Heath	Bridge Architect	(530) 526-2080
Tyler Pinell	Structure Construction	(510) 714-7639
Adam Menke	Structure Design Senior	(916) 227-9760
Evan Franciliso	Project Engineer - Structure Design	(916) 227-8127
Joseph Demartini	Assistant Project Engineer - Structure Design	(530) 913-5493
Zachary Gifford	Senior Environmental Scientist	(510) 506-1264
Tanvi Gupta	Environmental Scientist	(510) 421-8378
Beck Lithander	Landscape Architecture	(510) 847-9428
Jim Murphy	R/W Project Coordinator	(510) 908-9049
Alden Chalk	R/W Railroad Coordinator	(510) 286-5388
Mojgan Osooli	Storm Water Design Senior	(510) 926-0380
Irene Liu	Hydraulic Senior	(510) 846-0237
Hong Wong	Utility Engineering Workgroup	(510) 406-3809
Sergio Ruiz	Complete Street Coordinator	(510) 960-0778

Notes:
SHOPP = State Highway Operation and Protection Program
R/W = Right of Way

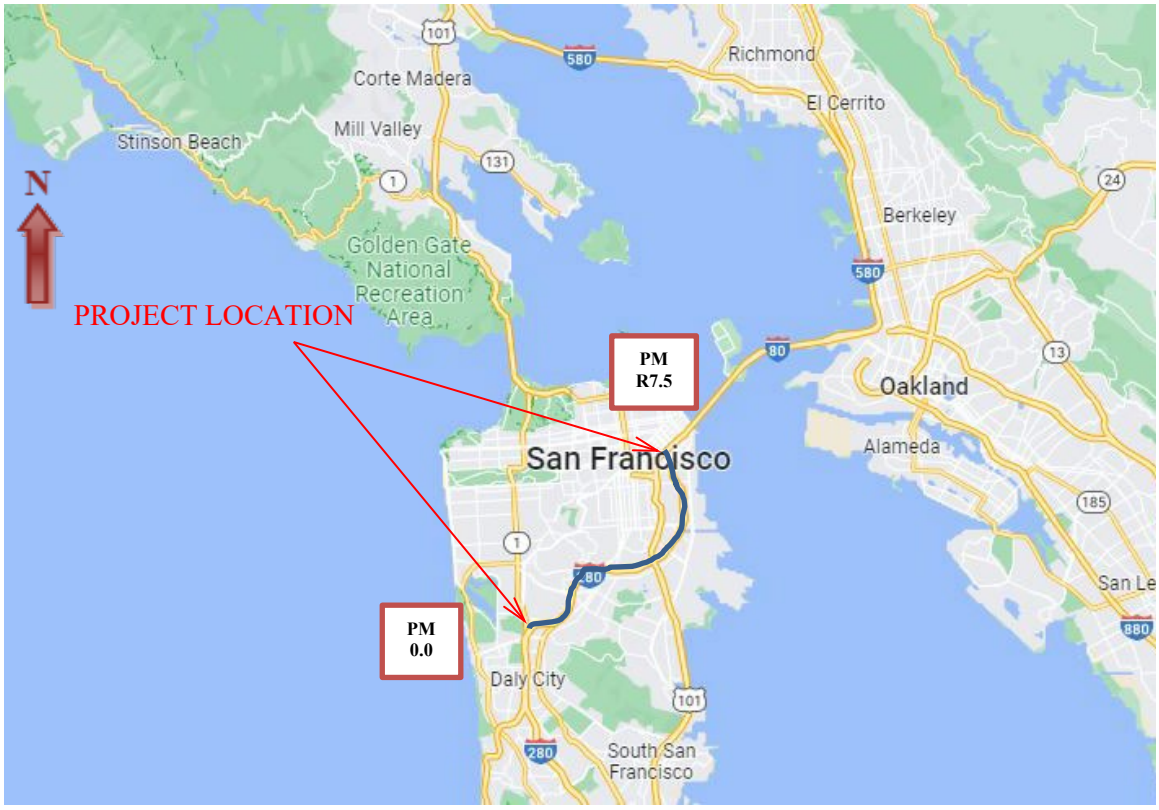
14. ATTACHMENTS (Number of Pages)

A. Location Map (1)
B. Strip Map and Preliminary Layouts (16)
C. Materials Recommendation (5)
D. General Plans and Quantities–Structure (27)
E. Structure Preliminary Geotechnical Report (11)
F. Hydraulic Recommendation (3)
G. Right of Way Data Sheet (8)
H. Preliminary Cost Estimate (10)
I. Rejected Alternative Layouts (8)
J. Right of Way Acquisition Layout (1)
K. Environmental Document: Categorical Exemption / Categorical Exclusion Determination Form (5)
L. Stormwater Data Report–Long Form (1)
M. Transportation Management Plan Data Sheet (5)
N. Stage Construction Layout (1)
O. SHOPP Project – Accomplishment – Performance Measures – Benefits (4)
P. Risk Register (2)
Q. Landscape Architecture Aesthetics Design Concepts (3)

Attachment A

Location Map

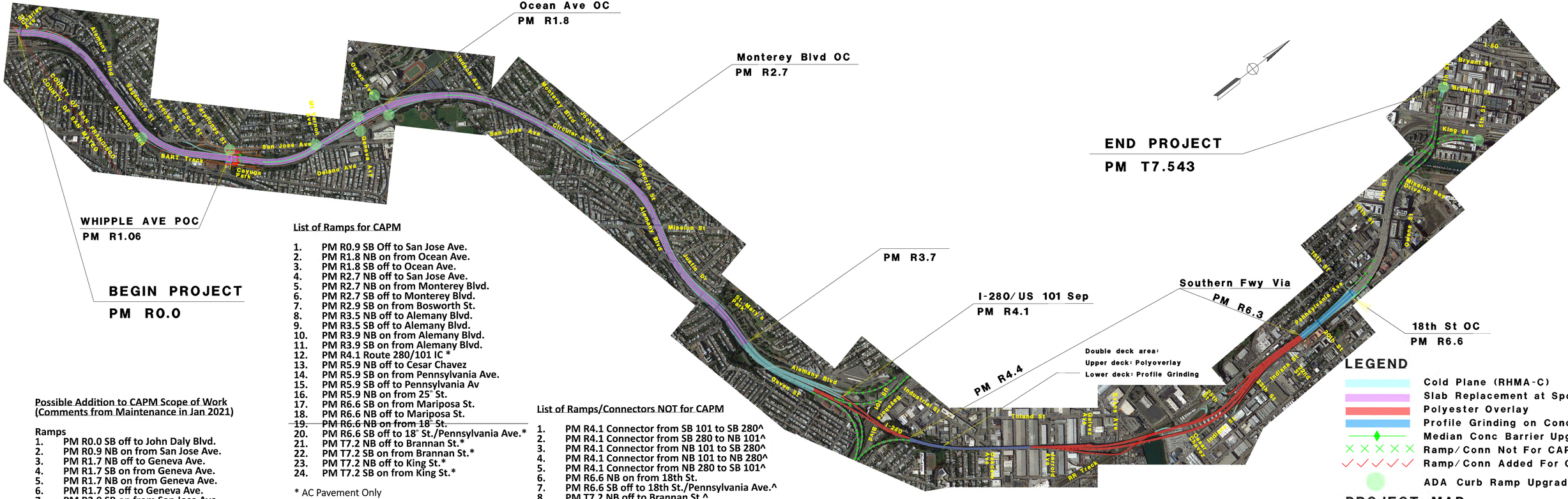
Location Map



In the City and County of San Francisco from San Mateo County Line to Brannan Street.

Attachment B

Strip Map and Preliminary Layouts



List of Ramps for CAPM

1. PM R0.9 SB Off to San Jose Ave.
2. PM R1.8 NB on from Ocean Ave.
3. PM R1.8 SB off to Ocean Ave.
4. PM R2.7 NB off to San Jose Ave.
5. PM R2.7 NB on from Monterey Blvd.
6. PM R2.7 SB off to Monterey Blvd.
7. PM R2.9 SB on from Bosworth St.
8. PM R3.5 NB off to Alemany Blvd.
9. PM R3.5 SB off to Alemany Blvd.
10. PM R3.9 NB on from Alemany Blvd.
11. PM R3.9 SB on from Alemany Blvd.
12. PM R4.1 Route 280/101 IC *
13. PM R5.9 NB off to Cesar Chavez
14. PM R5.9 SB on from Pennsylvania Ave.
15. PM R5.9 SB off to Pennsylvania Av
16. PM R5.9 NB on from 25th St.
17. PM R6.6 SB on from Mariposa St.
18. PM R6.6 NB off to Mariposa St.
19. PM R6.6 NB on from 18th St.
20. PM R6.6 SB off to 18th St./Pennsylvania Ave.*
21. PM T7.2 NB off to Brannan St.*
22. PM T7.2 SB on from Brannan St.*
23. PM T7.2 NB off to King St.*
24. PM T7.2 SB on from King St.*

* AC Pavement Only

List of Connectors for CAPM

1. PM R4.2 280/101 IC - SB 280
2. PM R4.2 280/101 IC - NB 280

List of Ramps/Connectors NOT for CAPM

1. PM R4.1 Connector from SB 101 to SB 280^
2. PM R4.1 Connector from SB 280 to NB 101^
3. PM R4.1 Connector from NB 101 to SB 280^
4. PM R4.1 Connector from NB 101 to NB 280^
5. PM R4.1 Connector from NB 280 to SB 101^
6. PM R6.6 NB on from 18th St.
7. PM R6.6 SB off to 18th St./Pennsylvania Ave.^
8. PM T7.2 NB off to Brannan St.^
9. PM T7.2 SB on from Brannan St.^
10. PM T7.2 NB off to King St.^
11. PM T7.2 SB on from King St.^

^ Structure Portion Only

Possible Addition to CAPM Scope of Work (Comments from Maintenance in Jan 2021)

Ramps
1. PM R0.0 SB off to John Daly Blvd.
2. PM R0.9 NB on from San Jose Ave.
3. PM R1.7 NB off to Geneva Ave.
4. PM R1.7 SB on from Geneva Ave.
5. PM R1.7 NB on from Geneva Ave.
6. PM R1.7 SB off to Geneva Ave.
7. PM R2.9 SB on from San Jose Ave.

Mainline
1. PM R4.38R to R4.88R (Profile Grinding)
2. PM R6.30 to R6.60 (Profile Grinding)

LEGEND

- Cold Plane (RHMA-C)
- Slab Replacement at Spots
- Polyester Overlay
- Profile Grinding on Conc Pvmt
- Median Conc Barrier Upgrade
- Ramp/ Conn Not For CAPM
- Ramp/ Conn Added For CAPM
- ADA Curb Ramp Upgrade

PROJECT MAP

04-SF-280-R0.0/ T7.543

EA04-0Q1200

No Scale

Apr 2021

Broad St

San Jose Ave

Farallones St

R/W

R/W

TO DALY CITY

Whipple AOC

SAN FRANCISCO

R/W

BART Track

Cayuga Park

Ave

Alemany Blvd

LEGEND

RED POC Alternative 7

WHIPPLE AVE POC (DRAFT)

04-SF-280-R1.06

EA04-0Q1200

Scale 1"=50'

October 2021

Curb Ramp Locations Summary Table

Location	Include in CAPM	NOT Include in CAPM
Alemany Blvd / San Jose Ave and Rte 280 on ramp. SF 280 PM R0.9	5 Locations	-
San Jose Ave. and Farallones St. SF 280 PM R1.07	-	4 Locations
Mount Vernon & San Jose Ave. SF 280 PM R1.46	4 Locations (ADA Grievance)	-
Geneva Ave. and Rte 280 on/off ramp. SF 280 PM R1.7	8 Locations	-
Ocean Ave. and Rte 280 on/off ramp. SF 280 PM R1.8	4 Locations	1 Location
King St. & Rte 280 On/ Off Ramps. SF 280 PM T7.2	-	2 Locations
Brannan St. & Rte 280 On/ Off Ramps. SF 280 PM T7.2	2 Locations	2 Locations
Pennsylvania Ave & 18th St. SF 280 PM R6.6	4 Locations (ADA Grievance)	-
Baden Street OC. SF 280 PM 2.46	2 Locations (ADA Grievance)	2 Locations (ADA Grievance but belongs to local)
Paulding St. and Circular Ave. SF 280 PM R2.2	-	1 Location (Not ADA Grievance Location)
Total:	**29 Locations**	**12 Locations**

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

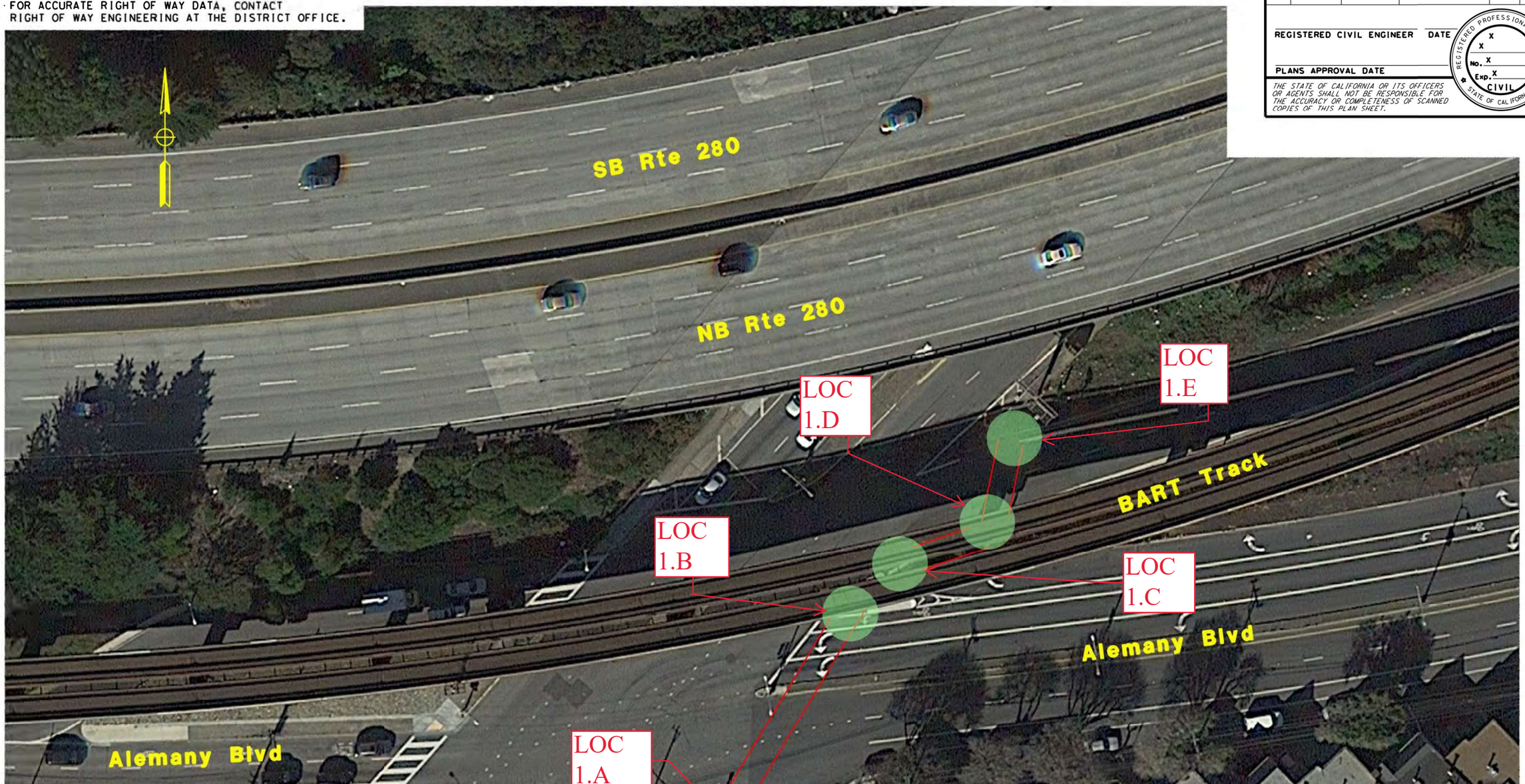
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

Alemany Blvd & Rte 280 On/Off Ramps

04-SF-280-R0.0/ T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY	DATE REVISED
x	x

CALCULATED-DESIGNED BY

CHECKED BY

FUNCTIONAL SUPERVISOR: x

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

SPECIAL PROJECTS

LAST REVISION 04-15-19 | DATE PLOTTED => 4/16/2021 | TIME PLOTTED => 4:29:23 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

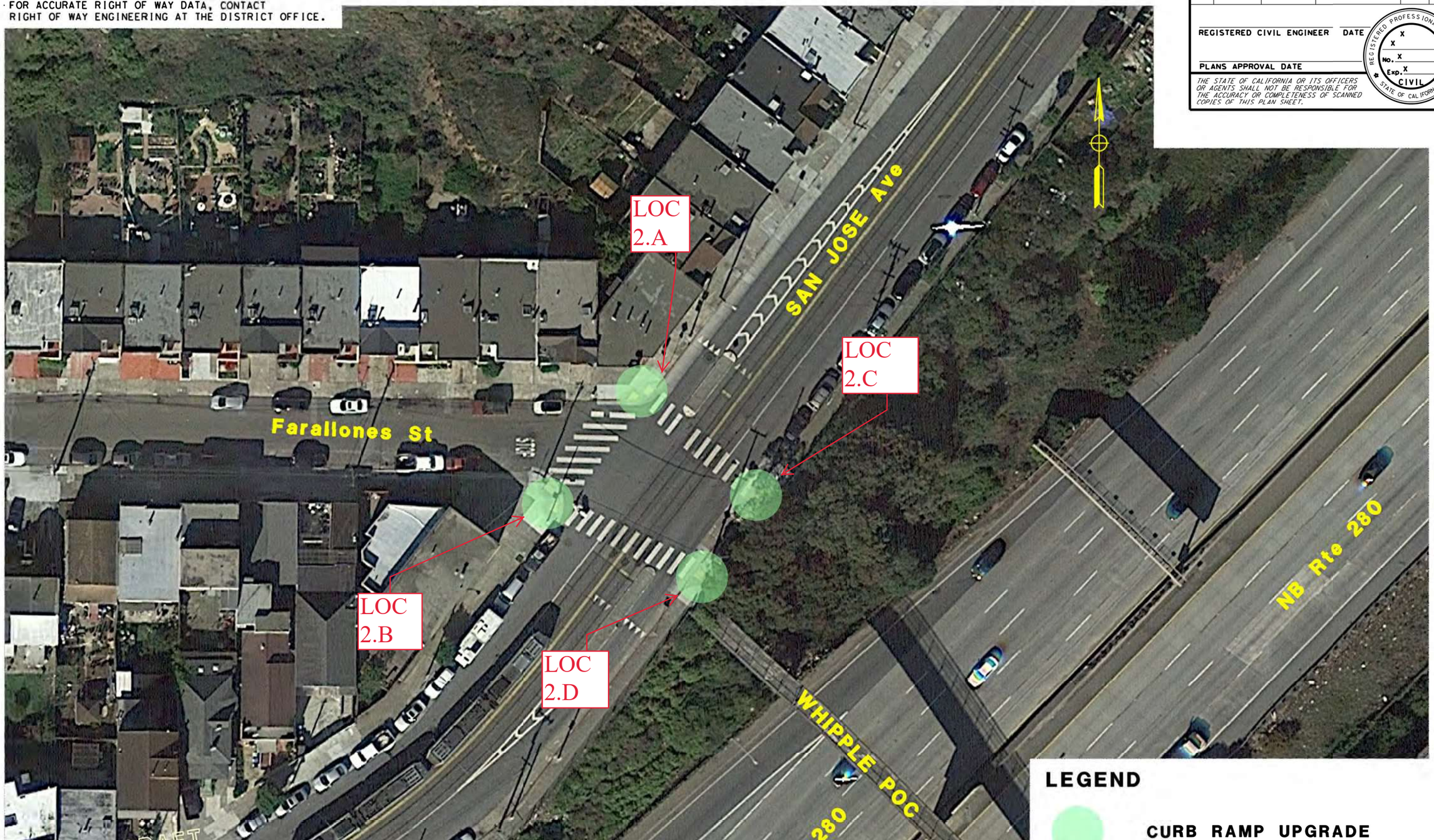
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

San Jose Ave & Farallones St

04-SF-280-R0.0/ T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

SPECIASL PROJECTS

LAST REVISION DATE PLOTTED => 4/16/2021
04-15-19 TIME PLOTTED => 4:36:18 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

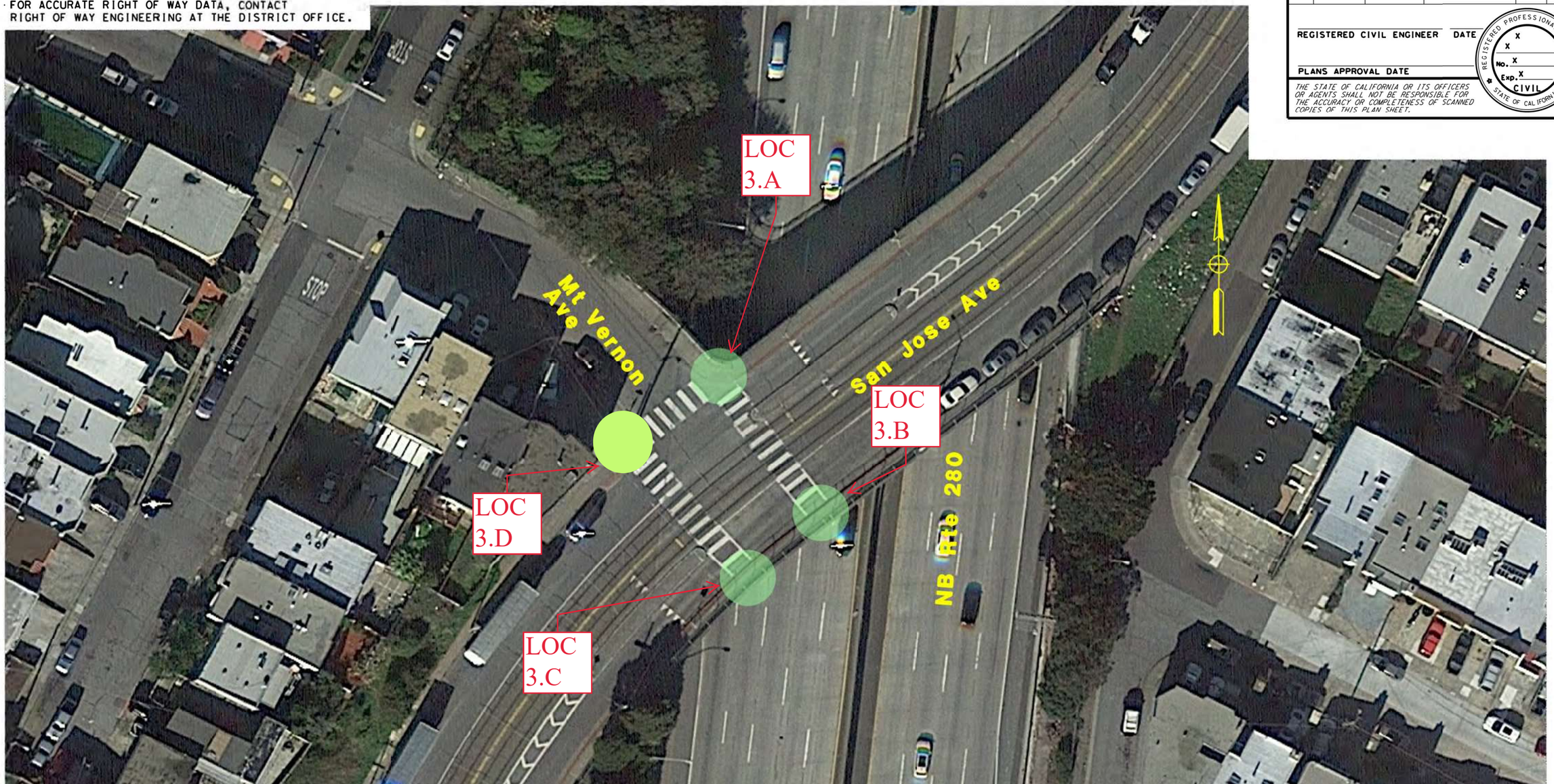
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

San Jose Ave & Mt Vernon Ave

04-SF-280-R0.0/ T7.543

EA04-0Q120

Scale 1"= 20'

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

SPECIAL PROJECTS

FUNCTIONAL SUPERVISOR: x

CALCULATED-DESIGNED BY

CHECKED BY

REVISED BY: x

DATE REVISED: x

LAST REVISION 04-15-19

DATE PLOTTED => 4/16/2021

TIME PLOTTED => 4:47:42 PM

BORDER LAST REVISED 7/2/2010

USERNAME =>

DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

UNIT 0702

PROJECT NUMBER & PHASE 041800045

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

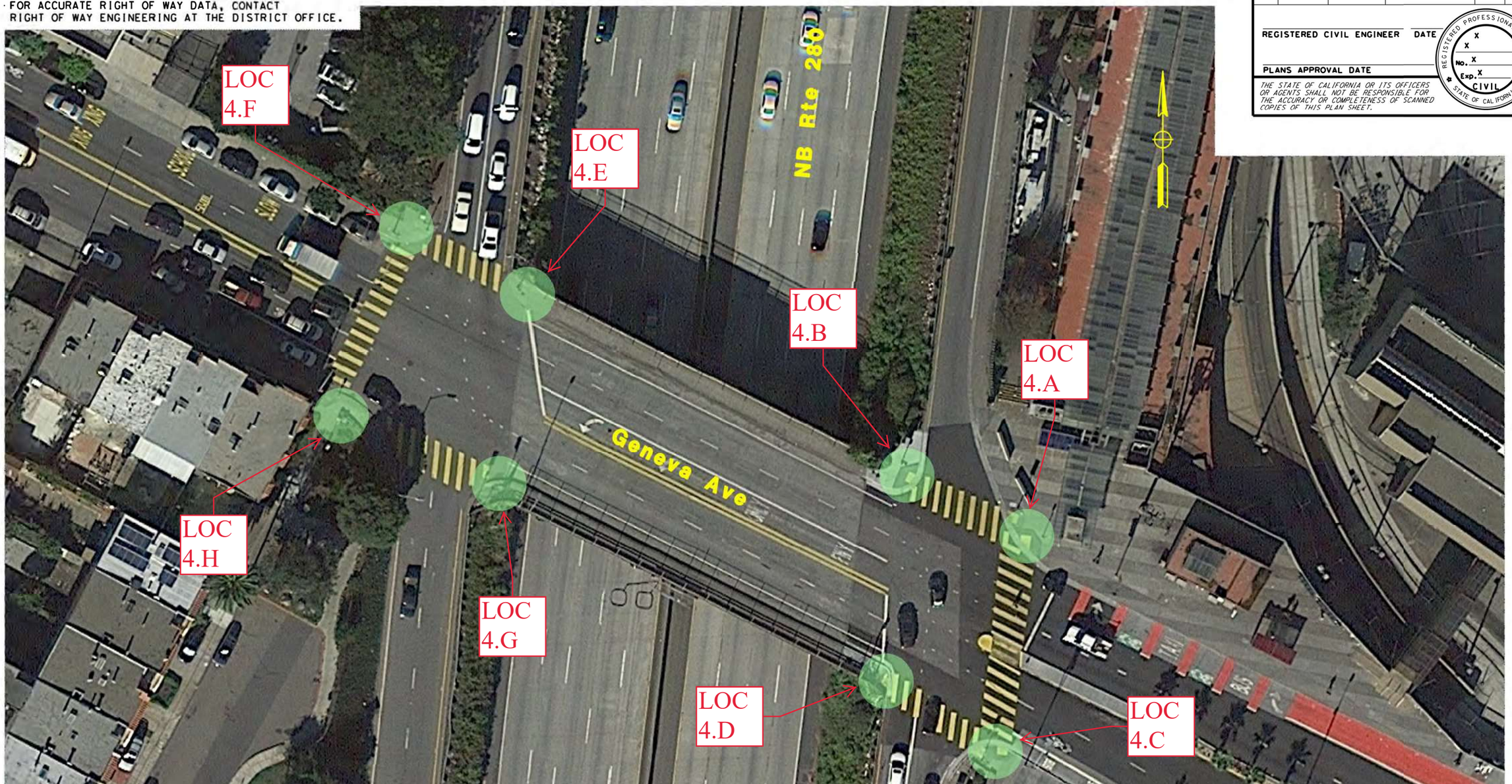
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

Geneva Ave & Rte 280 On/Off Ramps

04-SF-280-R0.0/ T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

SPECIAL PROJECTS

LAST REVISION 04-15-19 | DATE PLOTTED => 4/16/2021 | TIME PLOTTED => 8:24:44 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

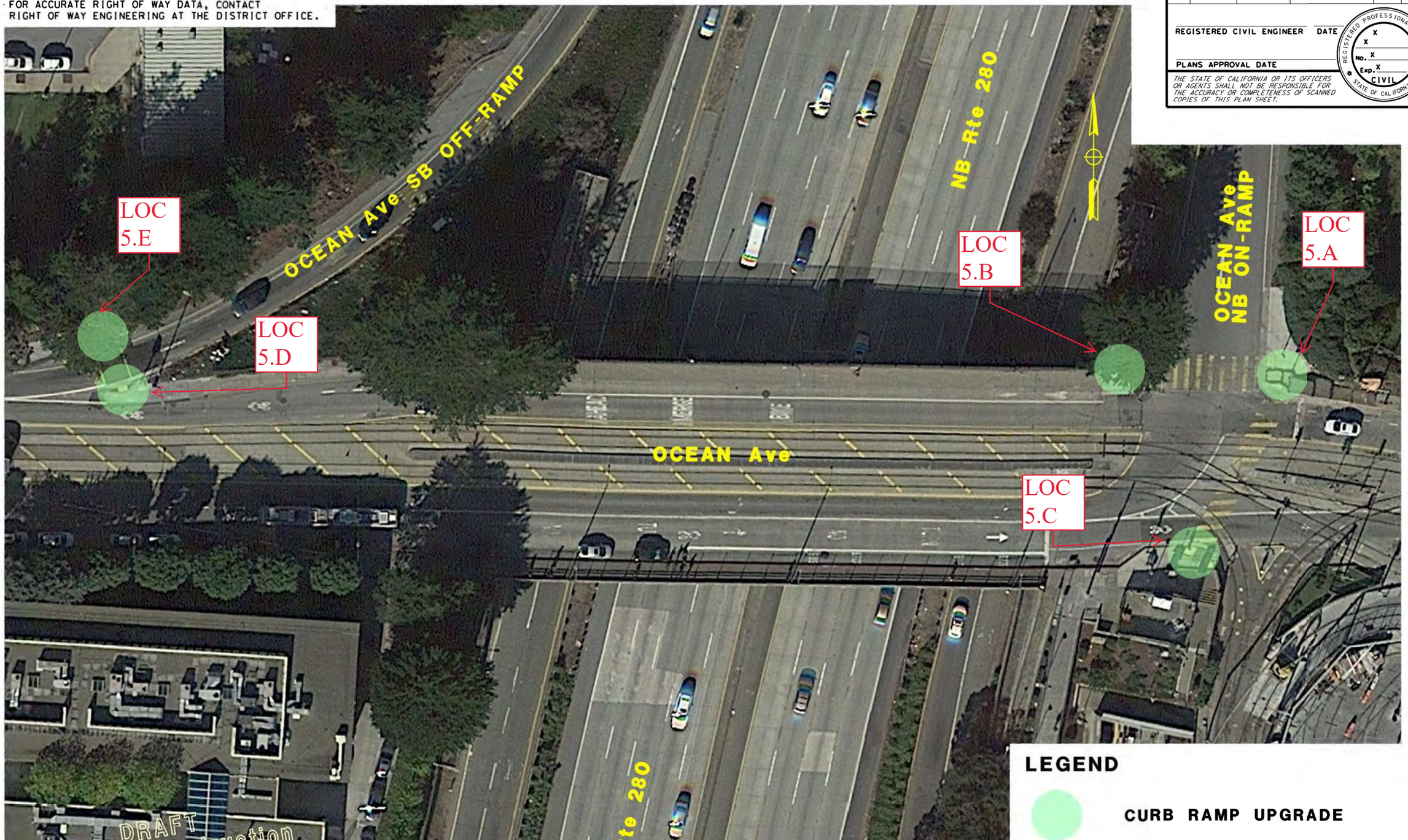
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

Ocean Ave & Rte 280 On/Off Ramps

04-SF-280-R0.0/T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY | DATE REVISED | CALCULATED- DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

SPECIAL PROJECTS

LAST REVISION 04-15-19 | DATE PLOTTED => 4/16/2021 | TIME PLOTTED => 8:30:29 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

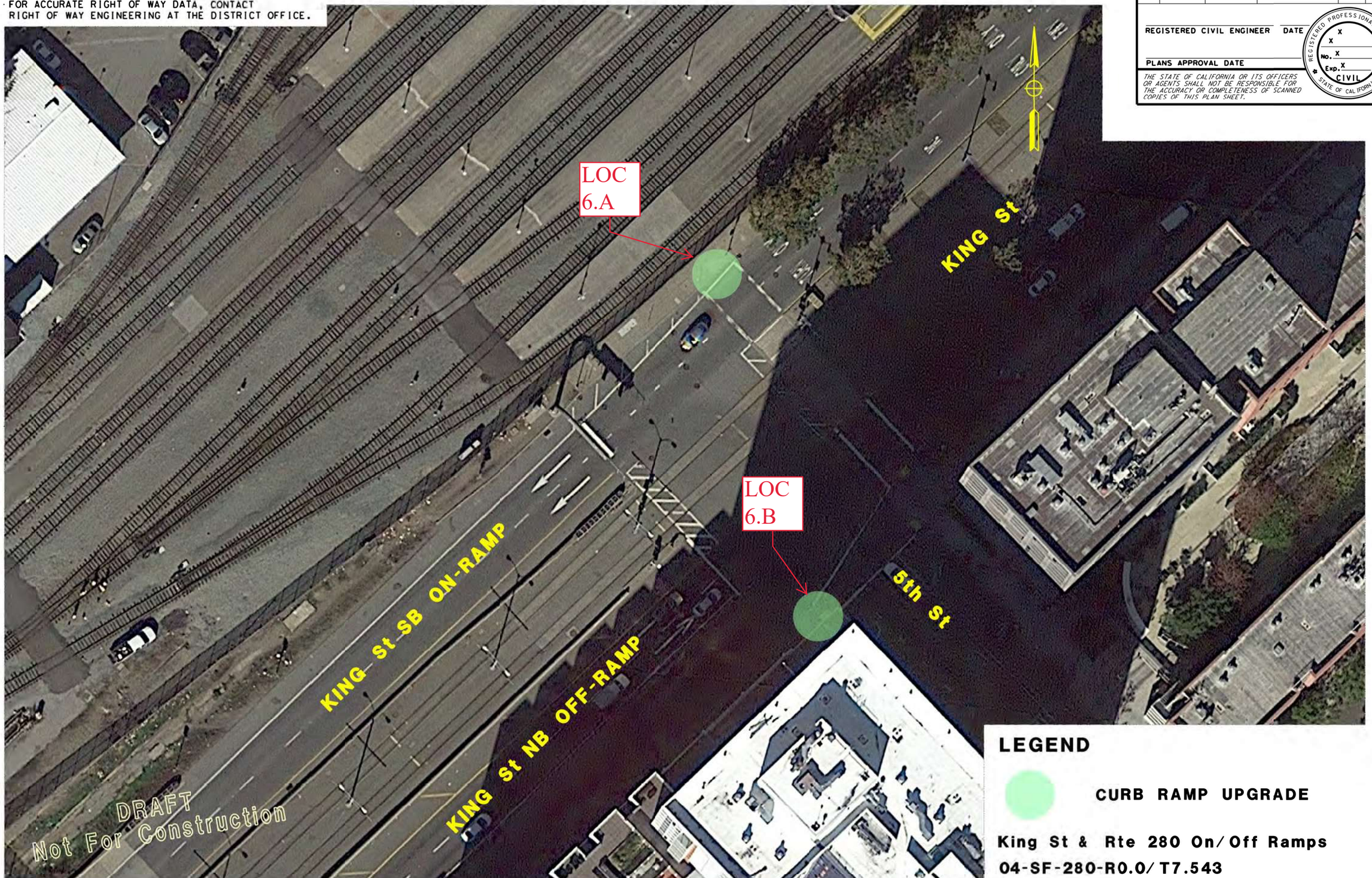
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X Exp. X CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

King St & Rte 280 On/Off Ramps

04-SF-280-R0.0/ T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

SPECIAL PROJECTS

LAST REVISION | DATE PLOTTED => 4/16/2021
04-15-19 | TIME PLOTTED => 9:16:24 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

NOTE:

· FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

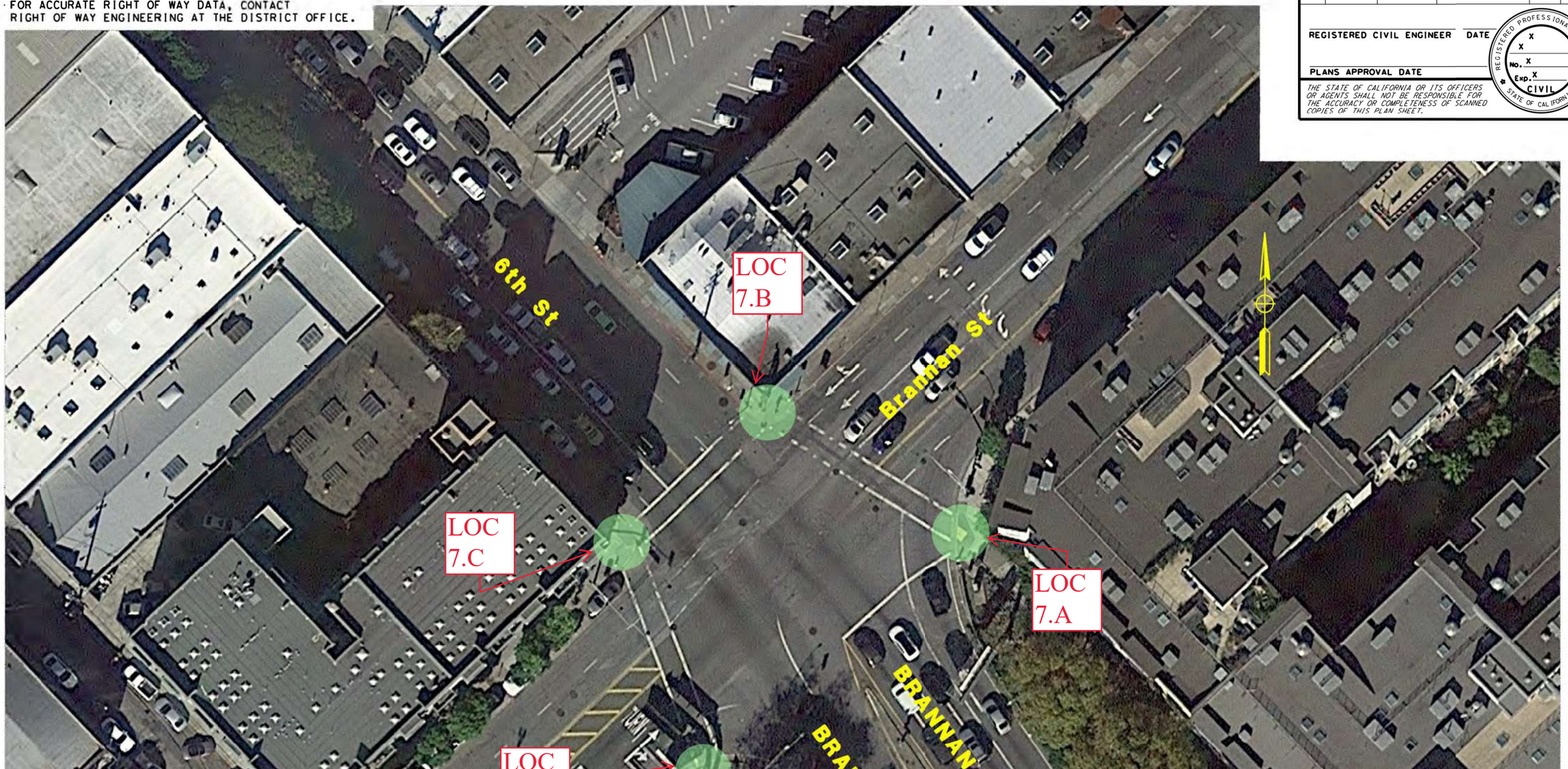
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

Brannan St & Rte 280 On/Off Ramps

04-SF-280-R0.0/T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY | DATE REVISED

CALCULATED-DESIGNED BY | CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

SPECIAL PROJECTS

LAST REVISION 04-15-19 | DATE PLOTTED => 4/16/2021 | TIME PLOTTED => 9:19:44 PM

BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

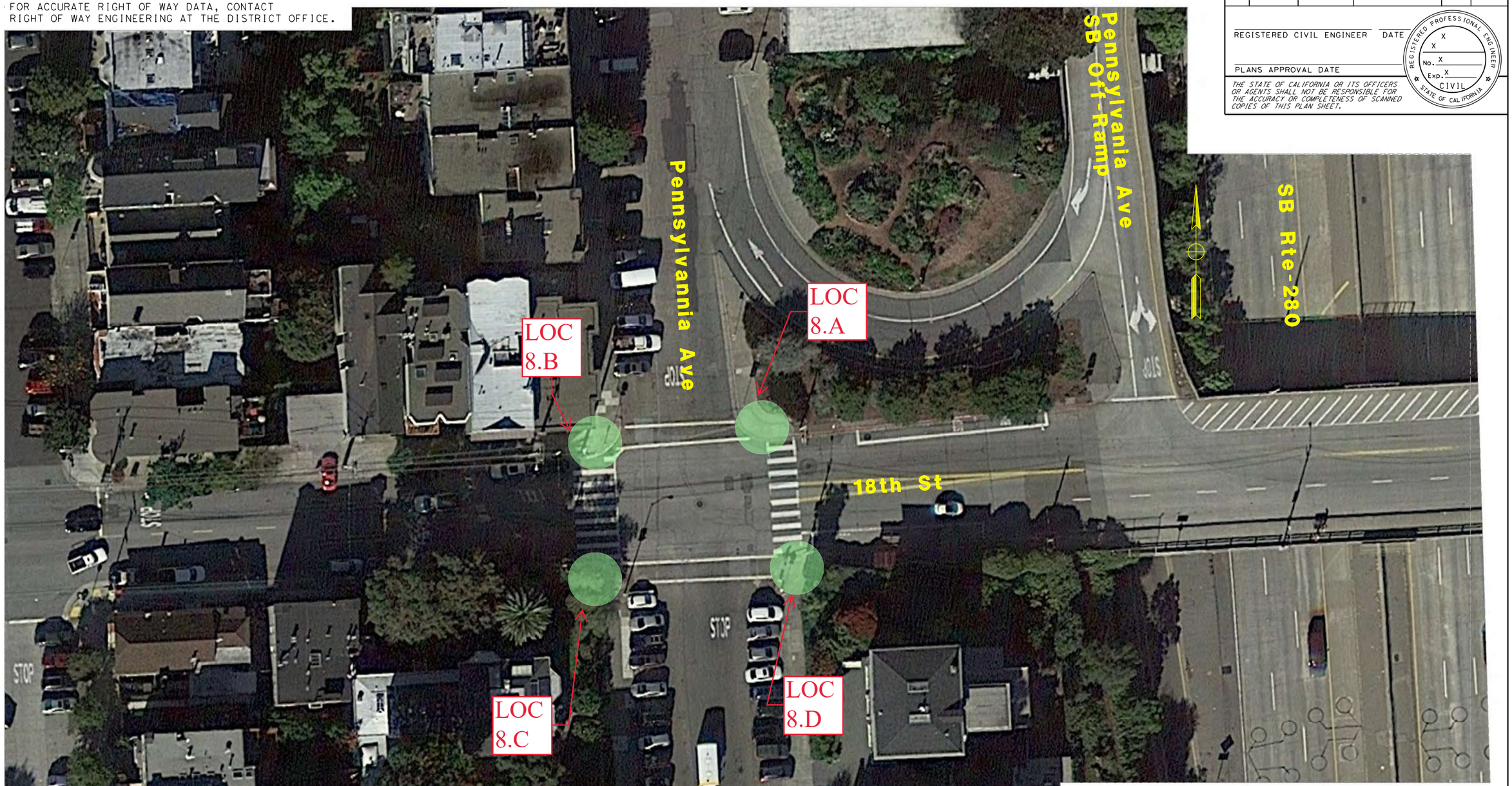
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	SM	Var	VAR		

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER X X No. X Exp. X CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



LEGEND

CURB RAMP UPGRADE

Pennsylvania Ave & 18th St

04-SF-280-R0.0/ T7.543

EA04-0Q120

Scale 1"= 20'

REVISED BY | DATE REVISED | CALCULATED-DESIGNED BY | CHECKED BY | FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

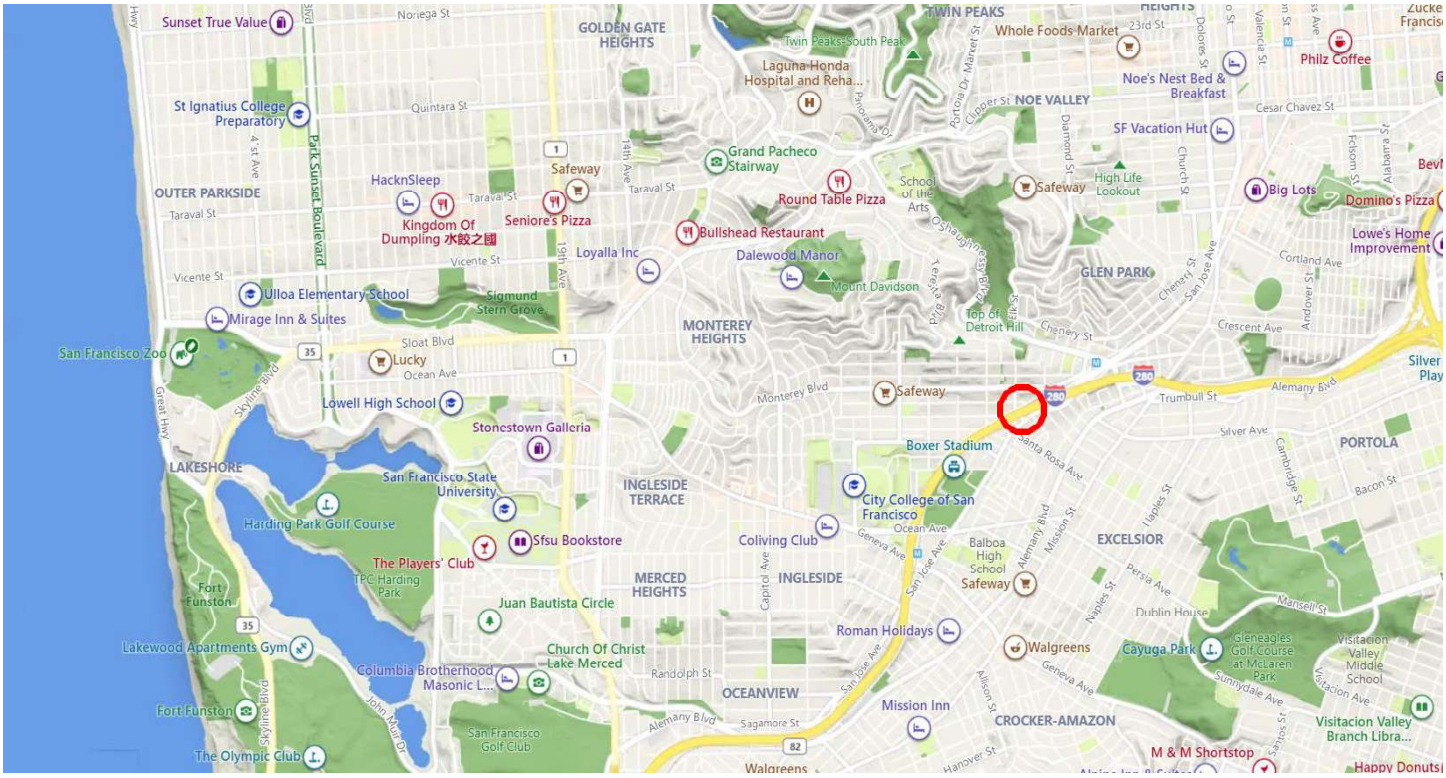
SPECIAL PROJECTS

LAST REVISION | DATE PLOTTED => 5/10/2021 | TIME PLOTTED => 3:22:17 PM | 04-15-19

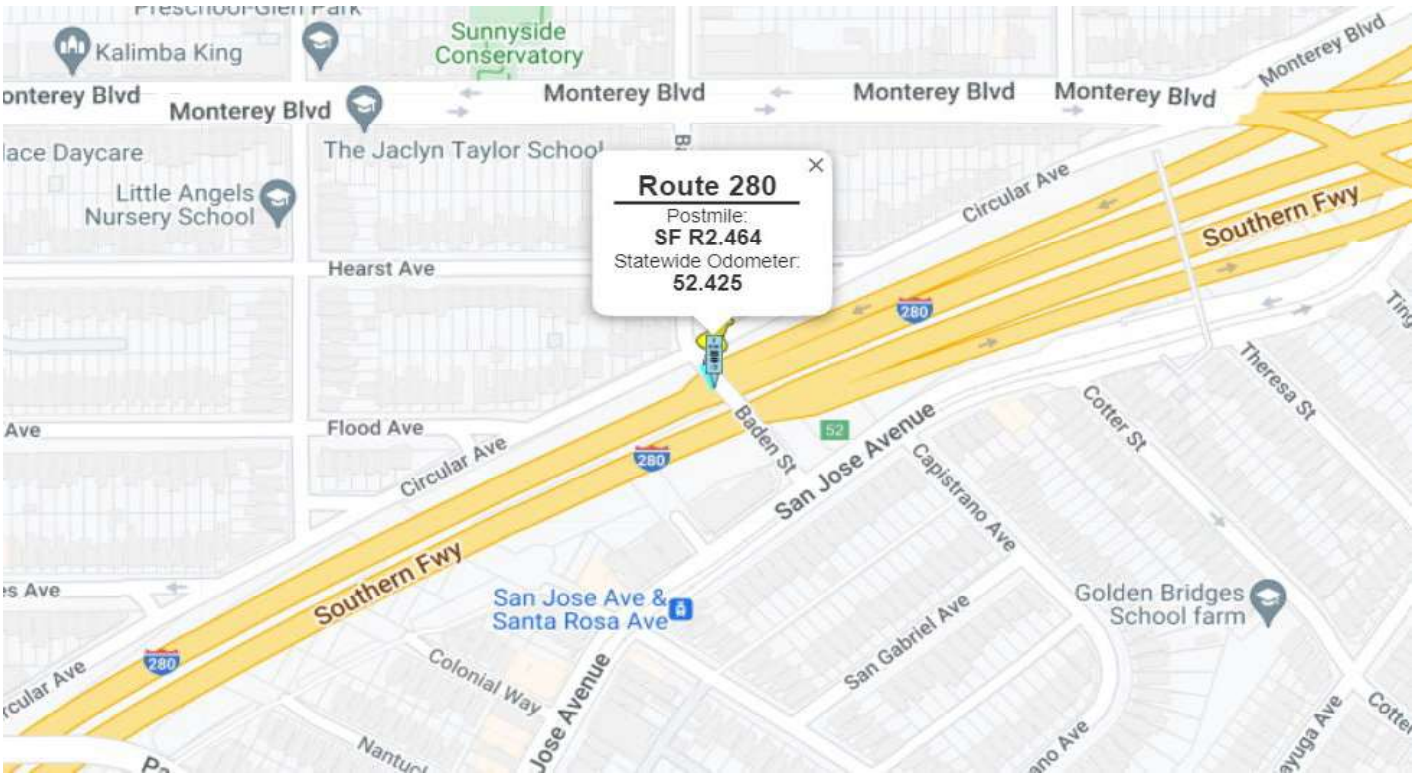
BORDER LAST REVISED 7/2/2010 | USERNAME => | DGN FILE => ...\DESIGN\CADD\Curb Ramps.dgn | RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3 | UNIT 0702 | PROJECT NUMBER & PHASE 041800045

Vicinity Map

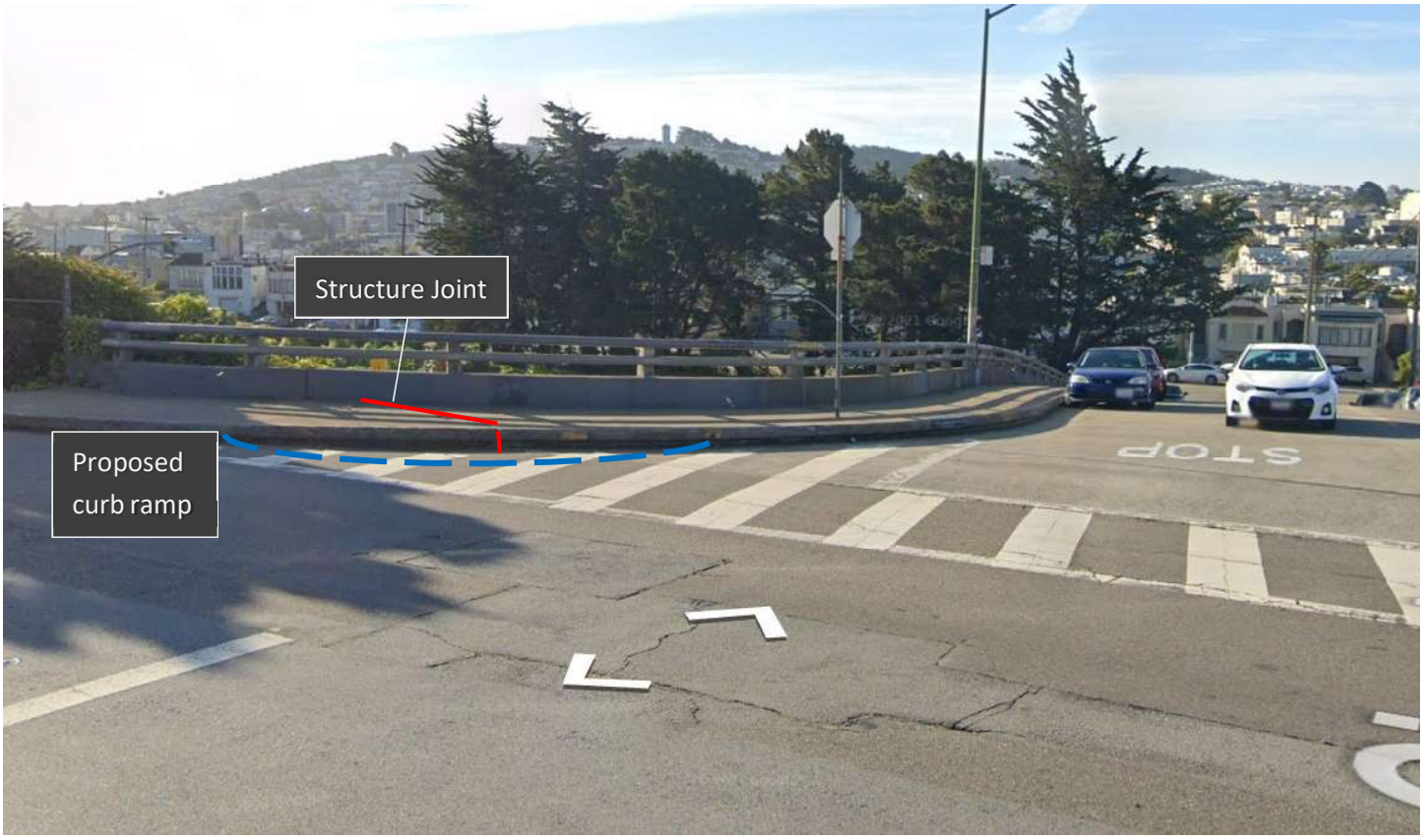
SF 280 PM 2.46 (Baden Street Pedestrian Over cross)



Location at NB 280 Near San Jose Avenue. Baden Street at Circular Avenue in San Francisco. ADA case 10944



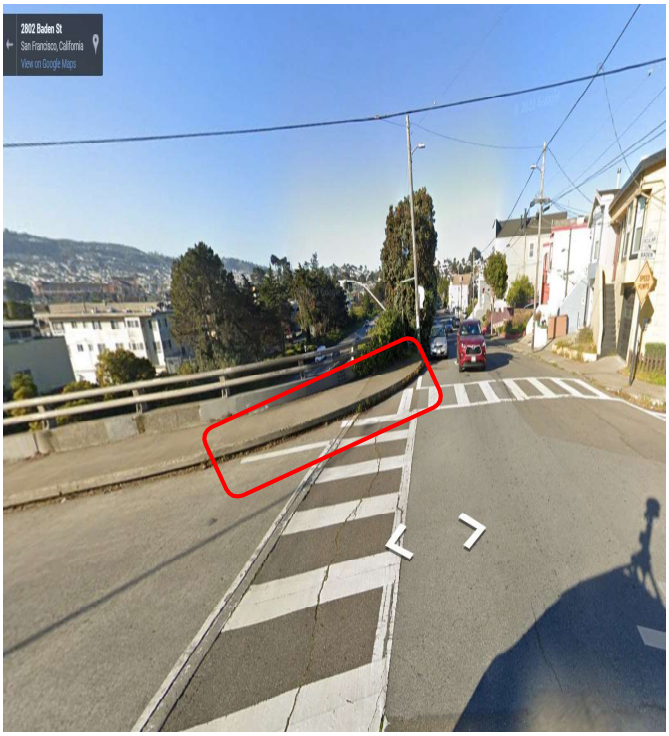
Location in detail. Baden St over cross at Circular Avenue.



Curb ramps to be installed at location marked for pedestrian with wheelchair access. Structure joints at location.

NE corner of structure joint in way of curb ramp installation. Structure need configuration.

Detail location of two curb ramps to be installed.



NE corner location for proposed curb ramp

SE corner location for proposed curb ramp

Google Map Link


280
Detroit St
Circular Ave
Judson Ave
Paulding St
Paulding St
Circular Ave
Paulding St
280
Gym Precision
Exercise equipment store

Paulding St. & Circular Ave.

Attachment C

Materials Recommendation

Memorandum

Making Conservation
a California Way of Life.

To: PETER AGUILERA
District Branch Chief
Office of Design South-Special Projects

Attn: Khodayar Maboudi

Date: July 26, 2022

File: 04-SF-280-PM R0.0/T7.5
EA 0Q120K (0418000045)
CAPM/ POC

From: Siyoum Woldemichael
SIYOUM WOLDEMICHAEL
Materials Design Engineer
Office of Materials & Pavement West

Concurred by: Jacob F Duncan
JACOB F. DUNCAN, PHD, PE
Acting Branch Chief
Office of Materials & Pavement-West

Subject: UPDATED MATERIALS RECOMMENDATION FOR PROJECT REPORT (PR)

This memo is in response to your request (dated May 19, 2022) for updated materials recommendations for the preparation of Capital Preventive Maintenance (CAPM) Project Report (PR) in the City and County of San Francisco on Route 280 from St. Charles Avenue to Brannan Street (PM 0.0/7.5).

Per project initiation report, this project proposes to grind and resurface the existing mainline traveled ways, ramps, and shoulders within the project limits. This project also proposes to upgrade or repair curb ramps to Americans with Disabilities Act (ADA) standards and replace Whipple Avenue Pedestrian Overcrossing (POC).

Abbreviations used in sections below:

AB = Aggregate Base
AB (2) = Class 2 Aggregate Base
AC = Asphalt Concrete
AS = Aggregate Subbase
CTB = Cement Treated Base
HMA = Hot Mix Asphalt
HMA-A = Hot Mix Asphalt Type A
MVP = Maintenance Vehicle Pullout
PCC = Portland Cement Concrete
PM = Permeable Material or Postmile
RHMA-G = Rubberized Hot Mix Asphalt Gap Graded

1. Existing Condition

According to information collected from Google Street View Maps (May 2022), recent project site visit on July 14, 2022, Pavement Condition Detailed Report (PCR) of 2019, As-Built Plans in Caltrans DRS files, and Materials files record, Route 280 in the City and County of San Francisco within the project limits consists of two to five lane freeway with inside and outside shoulders. Within the project limits, the existing pavement condition for 2022 was predicted based on 2019 PCR data. According to the predicted pavement condition data, lane weighted average International Roughness Index (IRI) for the existing pavement is less than 170 which showing fair to good condition. However, IRI value for flexible pavement segments alone is much higher than 170. The data also shows lane weighted average 3rd stage cracking of 1.5% and lane weighted average faulting of 3.9% for the rigid pavement segments. From Google Street View Maps of May

2022, confirmed during site visit, the existing AC pavement near structure shows some settlements. Between PM 6.3 & 7.5, we noticed the pavement missing both approach & departure slabs.

Ramps considered as part of this CAPM project are summarized in Table -1 as follows

Table-1: Ramps and Their Approximate Locations

No.	Ramps	PM		No.	Ramps	PM
1	SB off to San Jose Ave	R0.9		13	NB off to Cesar Chavez	R5.9
2	NB on from Ocean Ave	R1.8		14	SB on from Pennsylvania Ave	R5.9
3	SB off to Ocean Ave	R1.8		15	SB off to Pennsylvania Ave	R5.9
4	NB off to San Jose Ave	R2.7		16	NB on from 25th St	R5.9
5	NB on from Monterey Blvd	R2.7		17	SB on from Mariposa St	R6.6
6	SB off to Monterey Blvd	R2.7		18	NB off to Mariposa St	R6.6
7	SB on from Bosworth St	R2.9		19	NB on from 18th St	R6.6
8	NB off to Alemany Blvd	R3.5		20	SB off to 18th St/ Pennsylvania Ave	R6.6
9	SB off to Alemany Blvd	R3.5		21	NB off to Brannan St	T7.2
10	NB on from Alemany Blvd	R3.9		22	SB on from Brannan St	T7.2
11	SB on from Alemany Blvd	R3.9		23	NB off to King St	T7.2
12	Route 280/ 101 IC	R4.1		24	SB on from King St	T7.2

Table -2 is a summary of our research on available as-built or contract plans for Route 280. To verify our findings, an independent review of as-built or contract plans by the Office of Special Projects is strongly recommended.

Table-2. Summary of Available As-Built or Contract Plan Information

EA/ Filename	Construction Date	Post Miles (From/To)	Pavement Structural Sections with Maintenance Strategies
04-4H9004	6/30/2016	R0.1	280 SB Off-Ramp to John Daly Blvd consisted of 0.25'AC/ 0.50'AB (2)/ 1.0'PM. Widened Shoulder consists of 0.65' HMA-A, MVP consists of 0.3'HMA-A/0.50'AB (2) and sidewalk consists of 0.35' PCC/ 0.50' AB (2).
		R1.5	NB 280 at San Jose Ave OC consisted of 0.25' AC/ 0.5' AB (2)/ Var PM and widened shoulder consists of 0.85' HMA-A.
04-2A9904	09/15/2009	0.0/3.7	Existing 0.17' to 0.25' AC/Var AB (2) shoulder was cold planed 0.10' AC and replaced with 0.10' AC surfacing. Slab replacement and grinding existing 0.67' PCC/0.33' CTB (B)/0.50' AS (2) pavement.
		3.7/4.1	Cold plan 0.10' of existing 0.17' to 0.25' AC/Var AB (2) shoulder and replaced with the same thickness. Existing 0.33' AC/0.66' CTB (B)/0.50' AS (2)

			mainline was cold planed from 0.10’ to 0.20’ AC and resurfaced to the same thickness with RHMA-G.
		0.0/7.5	Nine ramps with existing 0.25’ AC/0.50’ CTB (B)/0.50 AS (2) were 0.10’ AC cold planed and resurfaced with 0.10’ RHMA-G
04-191764	1/27/1994	1.6/2.0	Existing 0.2’ AC shoulder widened with 0.65’ PCC. The existing mainline pavement is PCC
		2.0/2.7	Shoulder widened with 1.05’ AC (Type A)
04-140314	9/6/1966	0.0/7.32	Construction of a freeway travel lane with 0.67’ PCC/0.33’ CTB (B)/0.50’ AS (1)/1.0’ PM and 0.17’ AC/0.50’ AB (2) shoulder.

2. Life Cycle Cost Analysis (LCCA):

Performing LCCA is not required for this project based on Highway Design Manual (refer HDM Chapter 610, Topic 619).

3. RECCOMENDATIONS:

A. <u>Rigid Pavement CAPM Strategy</u>

Based on gathered information and current condition of existing pavement, individual slab replacement is recommended for this project. Replace removed concrete slab to the same thicknesses with Rapid Strength Concrete (**RSC**) and the underlying base with Rapid Strength Concrete Base (**RSCB**). Place a bond breaker to separate the new base material from the slab. After slab replacement is complete, diamond grind the concrete pavement as needed. **Note**: the number and locations of slabs which require replacement needs to be identified before finalizing the design phase of the project.

Cold plane a minimum of 0.15’ of AC shoulder and **replace it with 0.15’ RHMA-G**. If the existing AC layer after cold planning is less than 0.15’, cold plane to the full depth (refer HDM, section 635.2(6)).

B. <u>Flexible Pavement CAPM Strategy</u>

For flexible pavement segments where the projected IRI is greater than 170, cold plane **0.25’ of existing AC** pavement and overlay it in two lifts consisting of **0.10’ HMA-A** followed by **0.15’ RHMA-G**. The recommended pavement materials type and thickness should be implemented across the entire width of the pavement. This strategy helps to maintain profile grade and vertical clearance of the existing pavement. If the existing AC layer after cold planning is less than 0.15’, cold plane to the full depth (refer HDM, section 635.2(6)).

C. Curb Ramps

Minimum recommended pavement materials for curb ramps consists of 0.50'AB (2) followed by 0.30' PCC. For more information on curb ramps, please refer Caltrans 2018 Standard Plans Section A88A.

D. General

- It is outside the scope of our office to provide materials recommendations for bridge and bridge related structures, including approach/departure slabs. Please contact the Office of Structure Design (OSD).
- Refrain from removing and/or overlaying any existing structure decks or approach slabs unless you have received recommendations from Structures Maintenance and Investigations (SMI) or OSD.
- Contact **Traffic Safety Office** regarding traffic safety related issues such as installing or replacing rumble strips, if any is required.

E. Pavement Preparation

I. Dig-outs

- Dig-outs are recommended in areas with localized intermediate to advanced distress/pavement failures accompanied with or without base failures. Higher priority dig-outs location typically includes alligator cracking in wheel paths, potholes, shoving, rutting greater than 0.08', longitudinal cracks, transverse cracks, bleeding, etc.
- As a part of partial/full depth repairs, dig-outs are recommended at the distressed localized areas where pavement layers need to be removed and repaired to the bottom of the HMA layer until it reaches firm support or up to a maximum depth of 0.50', whichever is less. The removal of pavement for the dig-outs should extend at least a foot beyond the pavement surrounding the affected area to be patched.
- Prime Coat shall be applied on top of the base layer prior to placing the first lift of HMA.
- Tack Coat shall be applied according to Section 39-2.01C(3)f of the Caltrans Standard Specifications.
- Refer to Caltrans Standard Specifications Section 39-3 in general for existing asphalt concrete and Section 39-3.02 for replace asphalt concrete surfacing.

II. Crack Treatment

- Cracks wider than ¼" should be sealed prior to overlays. Existing thermoplastic traffic stripping and raised pavement markers should be removed. Undesirable material such as bleeding seal coats or excessive crack sealant should be removed before paving. To alleviate the potential bump in the overlays from the crack sealant, leave the crack sealant ¼" below the grade to allow for expansion (i.e., recess fill).

F. Smoothness Requirements

i. Include HMA and/or concrete "Incentive" pays in the project cost estimate for MRI Smoothness Design projects only. The incentive pay can be calculated using the Supplemental Funds Formulas in Revised Standard Specifications (RSS) 39-2, dated April 15th, 2022, for the applicable Target MRI/% Improvement for HMA Pavement, while using the formula in RSS 40-1 for Concrete Pavement. These costs should be added under the Supplemental Work Items.

ii. Within six months of the RTL date of the project, submit a request to Construction Support to perform IP test data collection for the project. When you receive the IP test results, submit the test results to Materials office. Materials Office will perform the ProVAL analysis and provide smoothness design recommendations. Any segment correction as the result of smoothness analyses will be included under the project-specific bid items. Please note that the project quantities and estimate may change as a result of this work before it gets ready to list (RTL).

iii. Reference should be made to RSS Sections 36-3, 39-2, and 40-1 for more specifics on Pavement Smoothness, Asphalt Concrete, and Concrete Pavement.

iv. Pavement smoothness should be measured using an Inertial Profiler (IP) on all areas except the areas noted on RSS 36-3.01D(3)(b) that are excluded from smoothness measurement with an IP.

v. MRI (Mean Roughness Index) smoothness design analysis using ProVAL FHWA software is required for all areas, except the areas noted under sections vii and viii below.

vi. Refer to RSS 36-3.01D(3)(b) for areas that are excluded from smoothness measurement with an IP but are subject to the 12-foot straight edge measurement.

vii. Ramps, continuous pavement less than 1000 feet, turn lanes, acceleration and deceleration lanes are excluded from MRI smoothness requirements, but are subject to ALR (Areas of Localized Roughness) smoothness requirements. Therefore, for areas with only ALR requirements, IP data collection is still needed. The reason is to provide existing condition of the pavement to all the bidders to understand how rough the existing pavement is when they want to bid on the project to make sure if they can meet the RSSs ALR requirements criteria. Therefore, smoothness RSS is required for projects that fall under ALR requirement, but there is no need for any data analysis or supplemental funds for incentives.

This is a preliminary recommendation, and our office will revise during PS&E phase of the project.

If you have questions, please contact Siyoum Woldemichael at (510) 846-6525 or Jacob Duncan at (510) 406-5003.

c: SWoldemichael, JDuncan, Daily Material Memorandum File

Attachment D

General Plans and Quantities – Structure

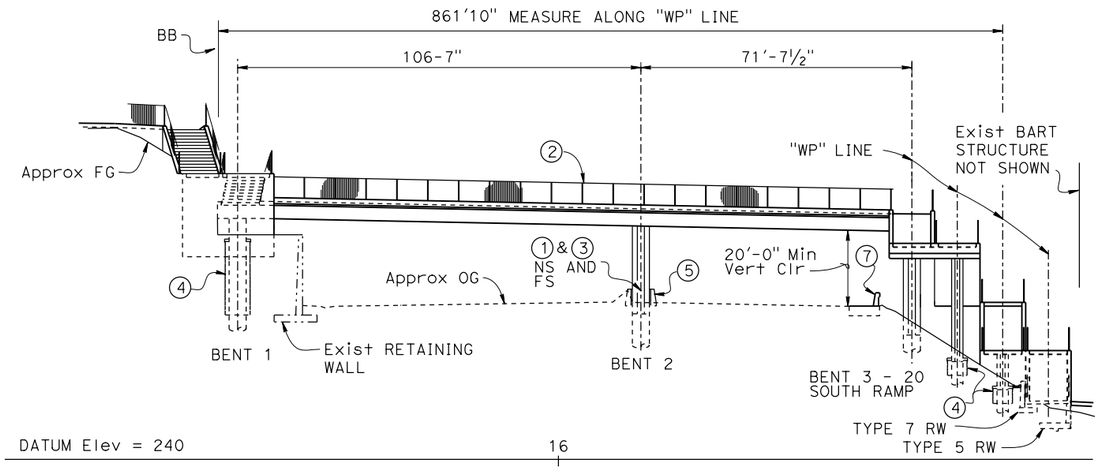
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
DDDD	CCCC	RRRR	PPPP	????	#####

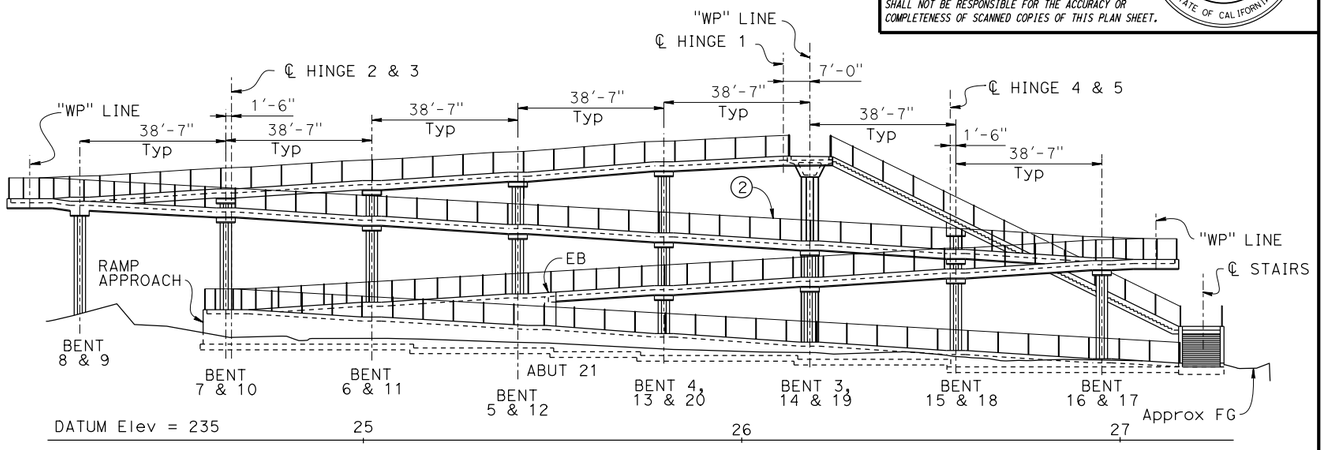
REGISTERED CIVIL ENGINEER — X — DATE

MM/DD/YYYY
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

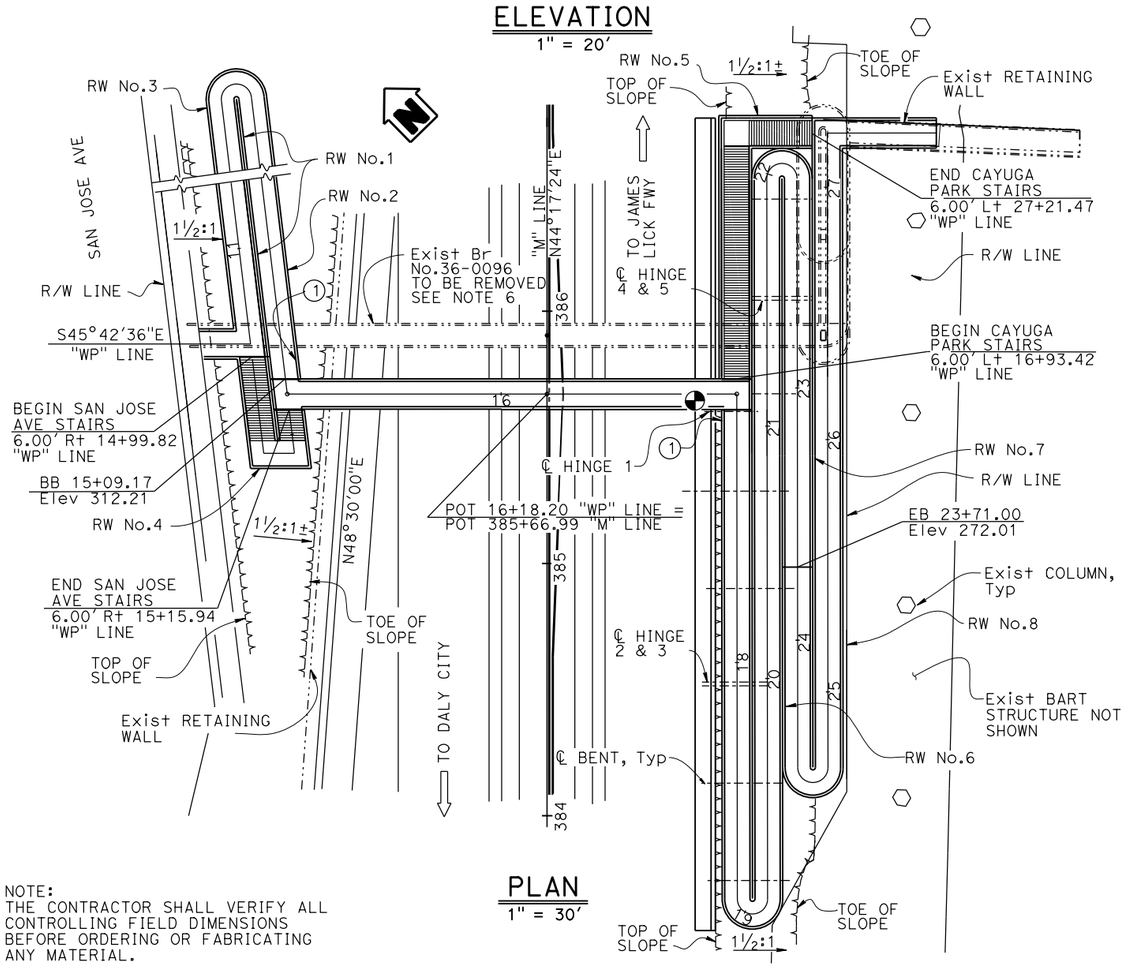
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.





RAMP ELEVATION
1" = 20'

ELEVATION
1" = 20'



PLAN
1" = 30'

NOTE:
THE CONTRACTOR SHALL VERIFY ALL CONTROLLING FIELD DIMENSIONS BEFORE ORDERING OR FABRICATING ANY MATERIAL.

NOTES:

1. For "TYPICAL SECTION"details, see "STRUCTURE PLAN" sheet.
2. For "GENERAL NOTES", "INDEX TO PLANS, and "QUANTITIES", see "INDEX TO PLANS" sheet.
3. For alignment data, see "FOUNDATION PLAN" sheet.
4. For "PROFILE GRADE", see "STRUCTURE PLAN" sheet.
5. For Stage Construction details, see ROADWAY PLANS.
6. For bridge removal details, see "LIMITS OF BRIDGE REMOVAL" sheet.
7. For Retaining Wall layouts and bearings, see "STRUCTURE PLAN" sheets.

(1) Paint "Whipple Ave POC BRIDGE NO 34-???" Year Constructed

(2) Decorative Railing, see "ARCHITECTURAL DETAILS" sheets

(3) Paint Bent Number

(4) Isolation Casing

(5) Concrete Barrier, see "ROADWAY PLANS"

(6) Decorative Lighting, see "ROADWAY PLANS", for main span locations, see "ARCHITECTURAL DETAILS" sheet.

(7) Concrete Barrier Slab with Concrete Barrier

TRAFFIC NOTES

VEHICULAR TRAFFIC:
1. _-_ New alignment. No traffic at the site.
2. _-_ Traffic will be detoured away from the site.
3. _-_ Traffic will be carried on the structure.
   Stage construction _x_ will _-_ will not be required.
4. _x_ Traffic will pass under the structure on
   RTE 280 (Name of St or Hwy)
   A. _-_ No falsework allowed over traffic.
   B. _x_ Falsework opening(s) required:

		Temp Vertical Clearance	Width of Traffic Opening
NB	Bound	15'-0"	48'-0"
SB	Bound	15'-0"	72'-0"
-	Two-Way	-	-

   C. _-_ Temporary traffic lane reduction needed for footing excavation.

PEDESTRIAN TRAFFIC:
Falsework opening required on: N/A (Name of St)

Location	Height	Width
N/A	N/A	N/A-

RAILROAD TRAFFIC:
Falsework opening required over: N/A (Name of RR)

Vertical Clearance	Horiz Clear Width
N/A	N/A

LEGEND:
-·-·-·- Existing Structure
Point of Minimum Vertical Clearance

Adam Menke
BRANCH CHIEF

	BY	CHECKED
DESIGN	Joseph DeMartini	Evan Franciliso
DETAILS	Bruno Jenko	Evan Franciliso
QUANTITIES	X	X

LOAD & RESISTANCE FACTOR DESIGN — LIVE LOADING: HL93 W/"LOW-BOY" & PERMIT DESIGN VEHICLE

	BY	CHECKED
LAYOUT	Evan Franciliso	Joseph DeMartini
SPECIFICATIONS	Joseph DeMartini	PLANS AND SPECS COMPARED: X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE No. 36-xxxx
POST MILE RI-06

ALTERNATIVE 1
WHIPPLE AVENUE POC
GENERAL PLAN

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 10/20/2020)

DATE PLOTTED => 12-AUG-2022 TIME PLOTTED => 14:16
FILE => 04-0q120-a-gp01al1.dgn USERNAME => s128080
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 0418000045
CONTRACT No.: 04-001204

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES				SHEET	OF
4-27-22	8-3-22	8-11-22		X	X

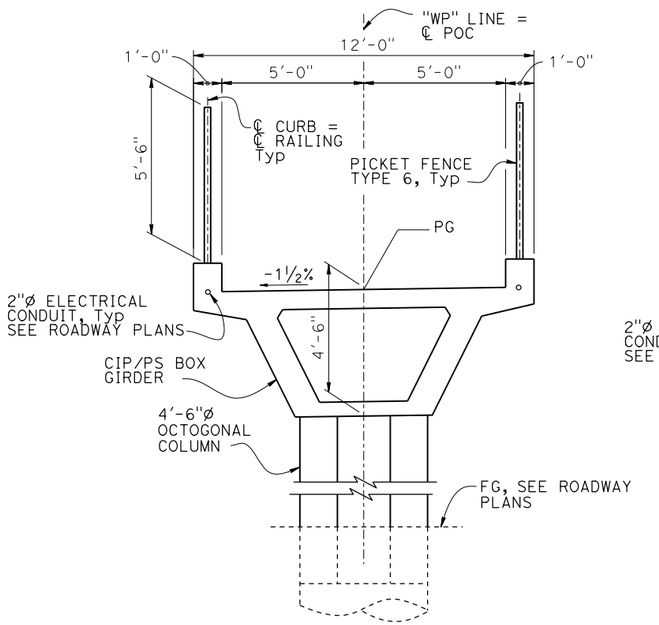
Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
DDDD	CCCC	RRRR	PPPP	????	#####

REGISTERED CIVIL ENGINEER — X — DATE

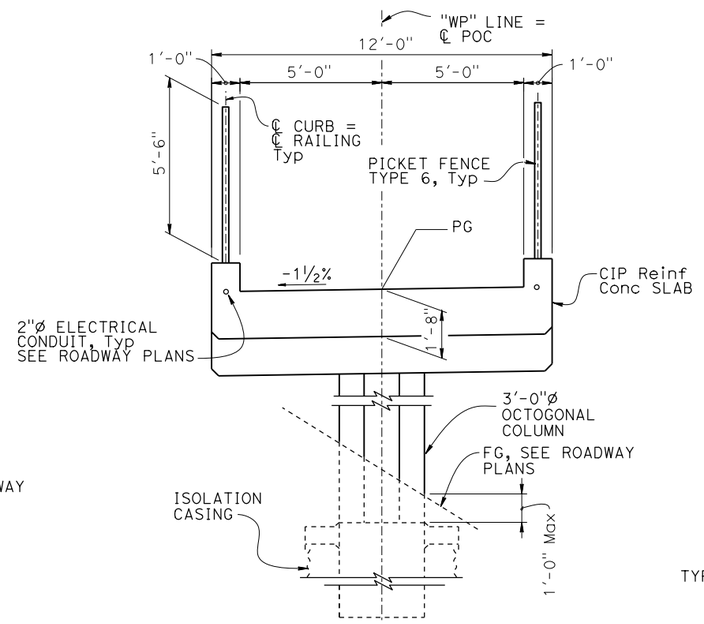
MM/DD/YYYY — PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — X — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

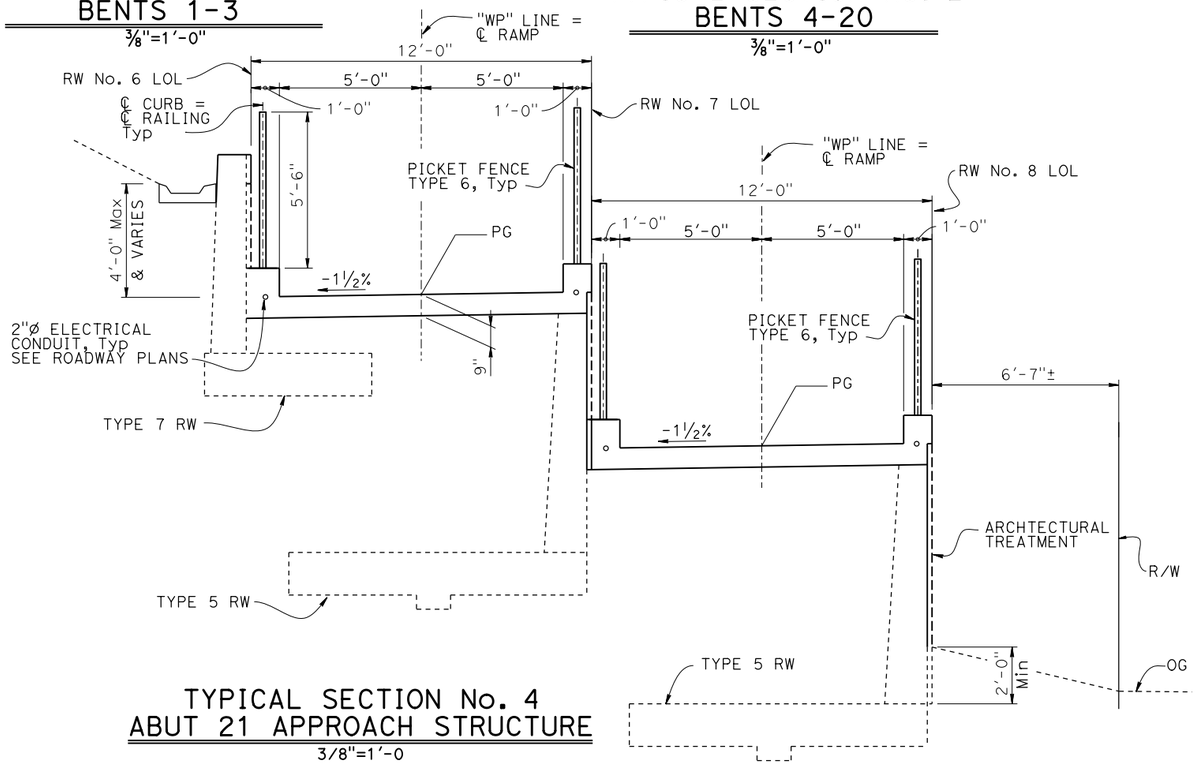
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



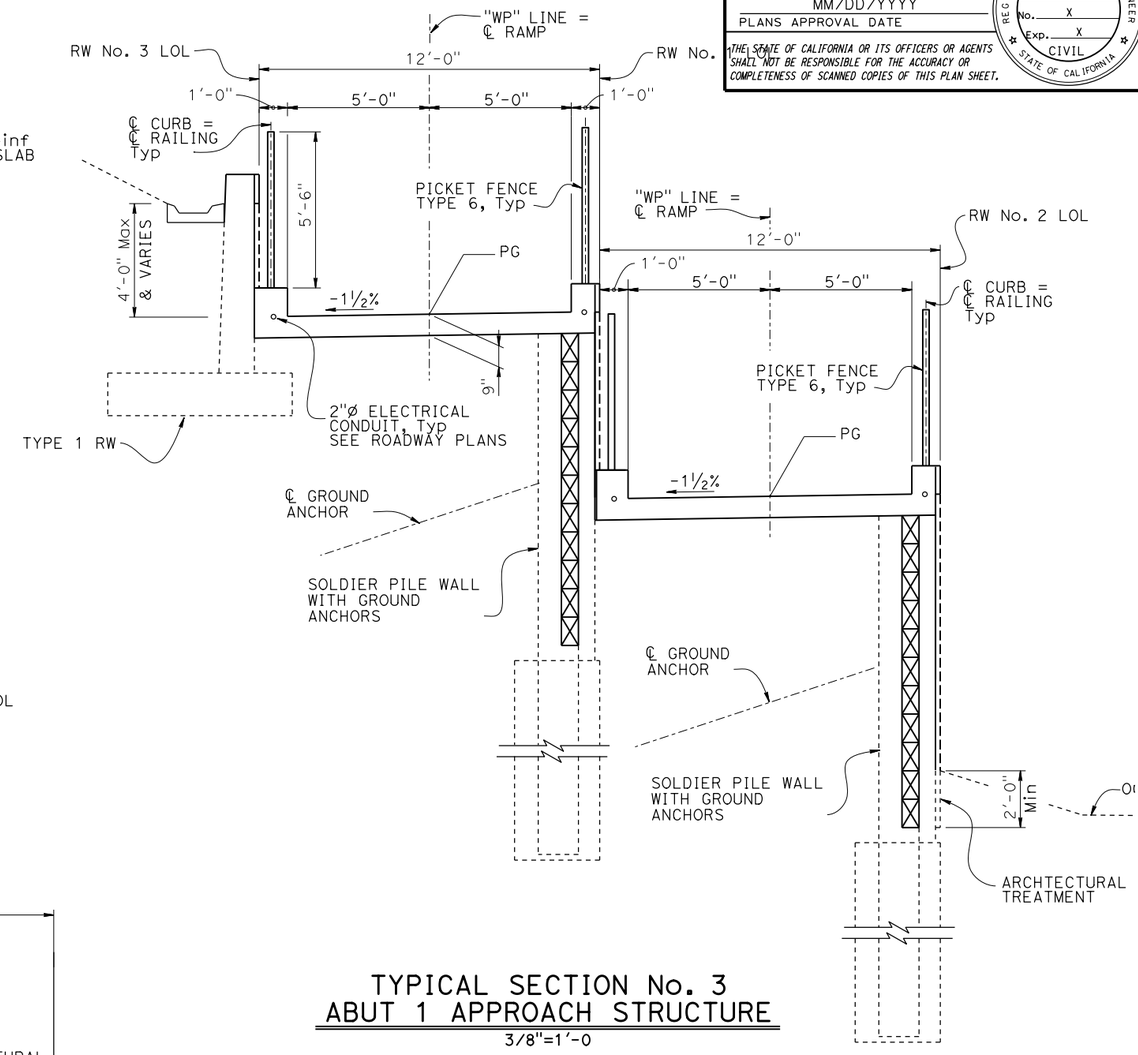
TYPICAL SECTION No. 1
BENTS 1-3
3/8"=1'-0"



TYPICAL SECTION No. 2
BENTS 4-20
3/8"=1'-0"



TYPICAL SECTION No. 4
ABUT 21 APPROACH STRUCTURE
3/8"=1'-0



TYPICAL SECTION No. 3
ABUT 1 APPROACH STRUCTURE
3/8"=1'-0

NOTES:

1. For Architectural Treatment details, see "ARCHITECTURAL DETAILS" sheet.

	BY	CHECKED
DESIGN	Joseph Demartini	X
DETAILS	Bruno Jenko	X
QUANTITIES	X	X

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE No. 36-XXXX
POST MILE R1-06

WHIPPLE AVE POC ALTERNATIVE 1
STRUCTURE PLAN

STRUCTURES DESIGN DETAIL SHEET (ENGLISH) (REVISION 12/13/2019)

DATE PLOTTED => 12-AUG-2022 TIME PLOTTED => 14:16
FILE => 04-0q120-k-ts-qi101.dgn USERNAME => s128080
ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 0418000045 CONTRACT No.: 04-001204

DISREGARD PRINTS BEARING EARLIER REVISION DATES →
REVISION DATES: 07-12-22 | 08-04-22 | 08-05-22

SHEET	OF
X	X

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
DDDD	CCCC	RRRR	PPPP	????	#####

REGISTERED CIVIL ENGINEER — X — DATE

MM/DD/YYYY
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER — X — No. X — Exp. X — CIVIL — STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

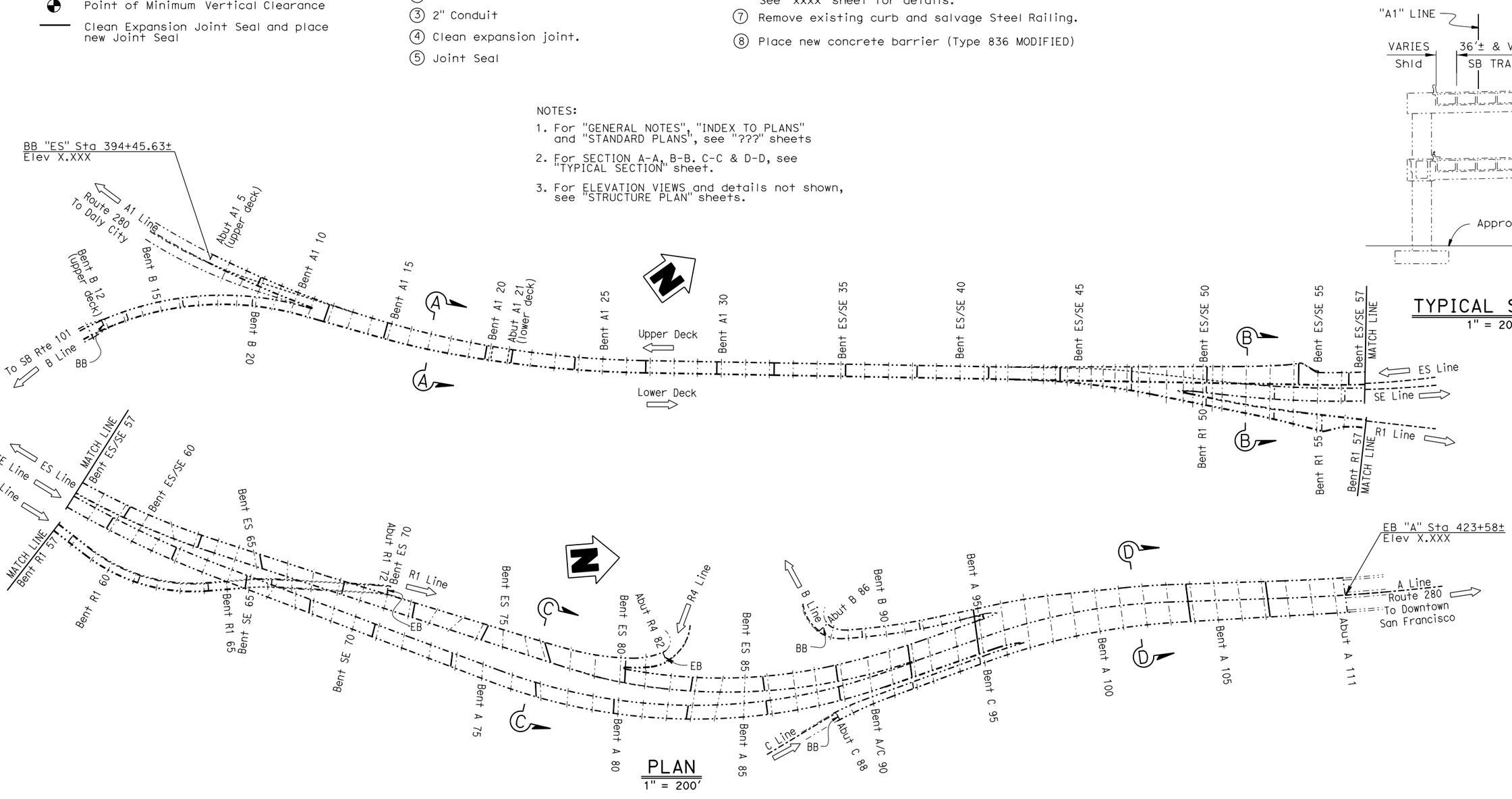
LEGEND:

- Existing Structure
- Limits of Bridge Removal (Portion)
- Point of Minimum Vertical Clearance
- Clean Expansion Joint Seal and place new Joint Seal

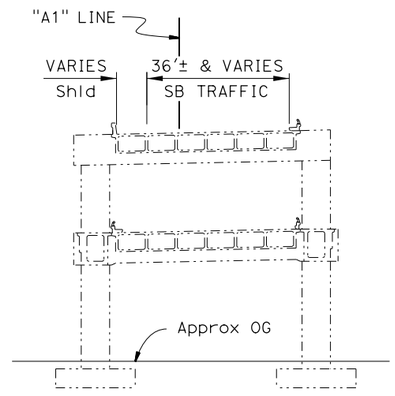
1. Paint "SOUTHER FREEWAY VIADUCT BR NO 34-0046 1965"
2. Carbon fiber reinforced polymer (CFRP) STMP
3. 2" Conduit
4. Clean expansion joint.
5. Joint Seal
6. Indicates limits of prepare concrete bridge deck surface and place 3/4" Max polyester concrete overlay. Prior to placing polyester concrete overlay, remove unsound concrete and patch with rapid setting concrete. See "xxxx" sheet for details.
7. Remove existing curb and salvage Steel Railing.
8. Place new concrete barrier (Type 836 MODIFIED)

NOTES:

1. For "GENERAL NOTES", "INDEX TO PLANS" and "STANDARD PLANS", see "???" sheets
2. For SECTION A-A, B-B. C-C & D-D, see "TYPICAL SECTION" sheet.
3. For ELEVATION VIEWS and details not shown, see "STRUCTURE PLAN" sheets.



PLAN
1" = 200'



TYPICAL SECTION
1" = 20'-0"

	DESIGN	BY Evan Franciliso	CHECKED X	LOAD & RESISTANCE FACTOR DESIGN	LIVE LOADING HL93 W/"LOW-BOY" & PERMIT DESIGN VEHICLE		
	DETAILS	BY Bruno Jenko	CHECKED X	LAYOUT	BY X	CHECKED X	
Adam Menke BRANCH CHIEF	QUANTITIES	BY X	CHECKED X	SPECIFICATIONS	BY X	PLANS AND SPECS COMPARED X	

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
DESIGN BRANCH 9

BRIDGE NO. 34-0046
POST MILE R4.40L

SOUTHERN FREEWAY VIADUCT
GENERAL PLAN

STRUCTURES DESIGN GENERAL PLAN SHEET (ENGLISH) (REVISION 10/20/2020)

DATE PLOTTED => 12-AUG-2022 TIME PLOTTED => 11:28
FILE => 34-0046-a-gp01.dgn USERNAME => s128080

ORIGINAL SCALE IN INCHES FOR REDUCED PLANS 0 1 2 3

UNIT: 3594
PROJECT NUMBER & PHASE: 0418000045 CONTRACT No.: 04-001204

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES				SHEET	OF
5-13-22	8-12-22			1	X

DATE: 10/28/2022

					Sub Total	80% Forecast Value	TRO	Mob	Cont	
WHIPPLE AVE POC										
ALT 1	CIP/PS BOX GIRDER									
No.	CODE	ITEM	UNIT	QUANTITY						
1	192003	STRUCTURE EXCAVATION (BRIDGE)	CY	130						
2	193003	STRUCTURE BACKFILL (BRIDGE)	CY	47						
3	490603	24" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	200						
4	490605	36" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	850						
5	490614	78" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	175						
6	490684	54" CAST-IN-DRILLED-HOLE CONCRETE PILING (ROCK SOCKET)	LF	30						
7	500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	5345						
8	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	CY	7						
9	510053	STRUCTURAL CONCRETE, BRIDGE	CY	918						
10	510054	STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER)	CY	625						
11	510072	STRUCTURAL CONCRETE, BARRIER SLAB	CY	191						
12	519100	JOINT SEAL (MR 2")	LF	108						
13	520102	BAR REINFORCING STEEL (BRIDGE)	LB	401057						
14	750041	ISOLATION CASING	LB	45392						
15	750505	BRIDGE DECK DRAINAGE SYSTEM	LB	1962						
16	839746	CONCRETE BARRIER (TYPE 842)	LF	322						
17	#######	DECORATIVE PICKET FENCE	LF	3455						
					$7,995,436	$8,157,634	$815,763	$997,044	$1,994,088	$11,965,000
STANDARD PLAN WALLS										
RW 3										
TYPE										
No.	CODE	ITEM	UNIT	QUANTITY						
1	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	241						
2	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	213						
3	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	96						
4	520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	7356						
5	511035	ARCHITECTURAL TREATMENT	SQFT	471						
6	839521	CABLE RAILING	LF	90						
7	730040	MINOR CONCRETE (GUTTER) (LF)	LF	90						
					$346,073	$354,024	$ 35,402	$ 43,270	$ 86,539	$519,000
RW 4										
TYPE										
No.	CODE	ITEM	UNIT	QUANTITY						
1	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	316						
2	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	284						
3	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	98						
4	520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	8991						
5	511035	ARCHITECTURAL TREATMENT	SQFT	699						
6	839521	CABLE RAILING	LF	43						
7	730040	MINOR CONCRETE (GUTTER) (LF)	LF	43						
					$383,553	$392,800	$ 39,280	$ 48,009	$ 96,018	$576,000
RW 6										
TYPE										
No.	CODE	ITEM	UNIT	QUANTITY						
1	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	162						
2	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	141						
3	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	63						
4	520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	4864						
5	511035	ARCHITECTURAL TREATMENT	SQFT	378						
6	839521	CABLE RAILING	LF	64						
7	730040	MINOR CONCRETE (GUTTER) (LF)	LF	64						
					$236,032	$241,660	$ 24,166	$ 29,536	$ 59,072	$354,000
RW 7										
TYPE										
No.	CODE	ITEM	UNIT	QUANTITY						
1	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	101						
2	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	267						
3	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	55						
4	520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	6200						
5	511035	ARCHITECTURAL TREATMENT	SQFT	522						
6	839521	CABLE RAILING	LF	0						
7	730040	MINOR CONCRETE (GUTTER) (LF)	LF	0						
					$223,155	$228,377	$ 22,838	$ 27,913	$ 55,825	$335,000
RW 8										
TYPE										
No.	CODE	ITEM	UNIT	QUANTITY						
1	192037	STRUCTURE EXCAVATION (RETAINING WALL)	CY	668						
2	193013	STRUCTURE BACKFILL (RETAINING WALL)	CY	863						
3	510060	STRUCTURAL CONCRETE, RETAINING WALL	CY	217						
4	520103	BAR REINFORCING STEEL (RETAINING WALL)	LB	26164						
5	511035	ARCHITECTURAL TREATMENT	SQFT	1676						
6	839521	CABLE RAILING	LF	0						
7	730040	MINOR CONCRETE (GUTTER) (LF)	LF	0						
					$881,627	$902,530	$ 90,253	$110,309	$220,618	$1,324,000
SOLDIER PILE WALLS										
RW 1										
TYPE										
No.	CODE	ITEM	UNIT	QUANTITY						
1	192049	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	CY	66						
2	193029	STRUCTURE BACKFILL (SOLDIER PILE WALL)	CY	110						

3	193119	LEAN CONCRETE BACKFILL	CY	53							
4	490xxx	STEEL SOLDIER PILE	LF	2087							
5	490xxx	xx" DRILLED HOLE	LF	759							
6	047xxx	STRUCTURAL CONCRETE, WALL FACING	CY	95							
7	511055	CONCRETE SURFACE TEXTURE	SF	2137							
8	046xxx	BAR REINFORCING STEEL (SOLDIER PILE WALL)	LB	10393							
9	575004	TIMBER LAGGING	MFBM	19							
10	590120	CLEAN AND PAINT STEEL SOLDIER PILING	LS	LS							
11	730040	MINOR CONCRETE (GUTTER)(LF)	LF	259							
12	780440	PREPARE AND STAIN CONCRETE	SQFT	2137							
	839521	CABLE RAILING	LF	259							
							$1,127,606	$1,155,013	$115,501	$141,168	$282,337	$1,694,000
RW 2												
TYPE												
No.	CODE	ITEM	UNIT	QUANTITY							
1	192049	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	CY	55							
2	193029	STRUCTURE BACKFILL (SOLDIER PILE WALL)	CY	92							
3	193119	LEAN CONCRETE BACKFILL	CY	42							
4	490xxx	STEEL SOLDIER PILE	LF	979							
5	490xxx	xx" DRILLED HOLE	LF	768							
6	047xxx	STRUCTURAL CONCRETE, WALL FACING	CY	78							
7	511055	CONCRETE SURFACE TEXTURE	SF	1294							
8	046xxx	BAR REINFORCING STEEL (SOLDIER PILE WALL)	LB	8404							
9	575004	TIMBER LAGGING	MFBM	14							
10	590120	CLEAN AND PAINT STEEL SOLDIER PILING	LS	LS							
11	730040	MINOR CONCRETE (GUTTER)(LF)	LF	256							
12	780440	PREPARE AND STAIN CONCRETE	SQFT	1294							
	839521	CABLE RAILING	LF	256							
							$785,809	$804,042	$80,404	$98,272	$196,544	$1,179,000
RW 5												
TYPE												
No.	CODE	ITEM	UNIT	QUANTITY							
1	192049	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	CY	78							
2	193029	STRUCTURE BACKFILL (SOLDIER PILE WALL)	CY	15							
3	193119	LEAN CONCRETE BACKFILL	CY	21							
4	490xxx	STEEL SOLDIER PILE	LF	836							
5	490xxx	xx" DRILLED HOLE	LF	397							
6	047xxx	STRUCTURAL CONCRETE, WALL FACING	CY	38							
7	511055	CONCRETE SURFACE TEXTURE	SF	901							
8	046xxx	BAR REINFORCING STEEL (SOLDIER PILE WALL)	LB	4115							
9	575004	TIMBER LAGGING	MFBM	7							
10	590120	CLEAN AND PAINT STEEL SOLDIER PILING	LS	LS							
11	730040	MINOR CONCRETE (GUTTER)(LF)	LF	103							
12	780440	PREPARE AND STAIN CONCRETE	SQFT	901							
	839521	CABLE RAILING	LF	103							
							$483,221	$495,088	$49,509	$60,511	$121,022	$726,000
STAIRS												
North+South												
North=San Jose Ave												
South=Cayuga Park												
No.	CODE	ITEM	UNIT	QUANTITY							
1	192001	STRUCTURE EXCAVATION	CY	365							
2	193001	STRUCTURE BACKFILL	CY	49							
3	510050	STRUCTURAL CONCRETE	CY	143							
4	520101	BAR REINFORCING STEEL	LB	38324							
5	#######	DECORATIVE PICKET FENCE	LF	402							
6	490605	36" CAST-IN-DRILLED-HOLE CONCRETE PILING	LF	50							
							$959,989	$985,624	$98,562	$120,465	$240,930	$1,446,000
Cap Maint												
SOUTHERN FREEWAY VIADUCT												
34-0046												
No.	CODE	ITEM	UNIT	QUANTITY							
~~1~~	~~047891~~	~~CARBON FIBER REINFORCED POLYMER STRIP~~	~~LF~~	~~27720~~							
~~2~~	~~48120~~	~~2" CONDUIT (BRIDGE)~~	~~LF~~	~~43176~~							
~~3~~	~~192003~~	~~STRUCTURE EXCAVATION (BRIDGE)~~	~~CY~~	~~9~~							
~~4~~	~~193003~~	~~STRUCTURE BACKFILL (BRIDGE)~~	~~CY~~	~~6~~							
~~5~~	~~510053~~	~~STRUCTURAL CONCRETE, BRIDGE~~	~~CY~~	~~3~~							
~~6~~	~~511106~~	~~DRILL AND BOND DOWEL~~	~~LF~~	~~27~~							
7	511118	CLEAN EXPANSION JOINT	LF	3704	$50	$185,200					
8	519100	JOINT SEAL (MR 2")	LF	3737	$115	$429,755					
~~9~~	~~520102~~	~~BAR REINFORCING STEEL (BRIDGE)~~	~~LBS~~	~~1622~~							
10	600001	PUBLIC SAFETY PLAN	LS	1	$2,333	$2,333					
11	600011	RAPID SETTING CONCRETE (PATCH)	CF	13530	$90	$1,217,700					
~~12~~	~~600029~~	~~REMOVE ASPHALT CONCRETE SURFACING~~	~~CF~~	~~-~~							
13	600033	REMOVE UNSOUND CONCRETE	CF	13530	$110	$1,488,300					
14	600037	PREPARE CONCRETE BRIDGE DECK SURFACE	SQFT	1082384	$1.25	$1,352,980					
~~15~~	~~600039~~	~~REFINISH BRIDGE DECK~~	~~CF~~	~~-~~							
16	600041	FURNISH POLYESTER CONCRETE OVERLAY	CF	90198.71	$120	$10,823,845					
17	600043	PLACE POLYESTER CONCRETE OVERLAY	SQFT	1082384	$4.75	$5,141,324					
~~18~~	~~6001XX~~	~~BRIDGE REMOVAL (PORTION), LOCATION XX~~	~~CF~~	~~72~~							
~~19~~	~~839744~~	~~CONCRETE BARRIER (TYPE 836 MODIFIED)~~	~~LF~~	~~86399~~							
~~20~~	~~xxxxxx~~	~~REMOVE EXISTING CURB~~	~~LF~~	~~86399~~							
~~21~~	~~xxxxxx~~	~~SALVAGE STEEL RAILING~~	~~LF~~	~~86399~~							
							$20,641,437	$21,711,610	$2,171,161	$2,653,641	$5,307,282	$31,844,000
Total												$51,962,000

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

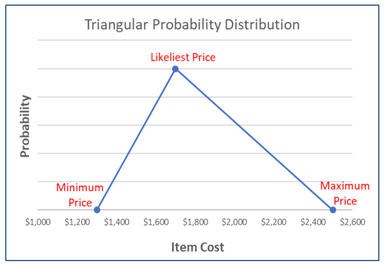
[X] GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8-16-202
OUT EST:	10/10/2022

BRIDGE NAME:	WHIPPLE AVE POC
BRIDGE NUMBER:	34-xxxx
TYPE:	CIP/RC BOX GIRDER ALT 1
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

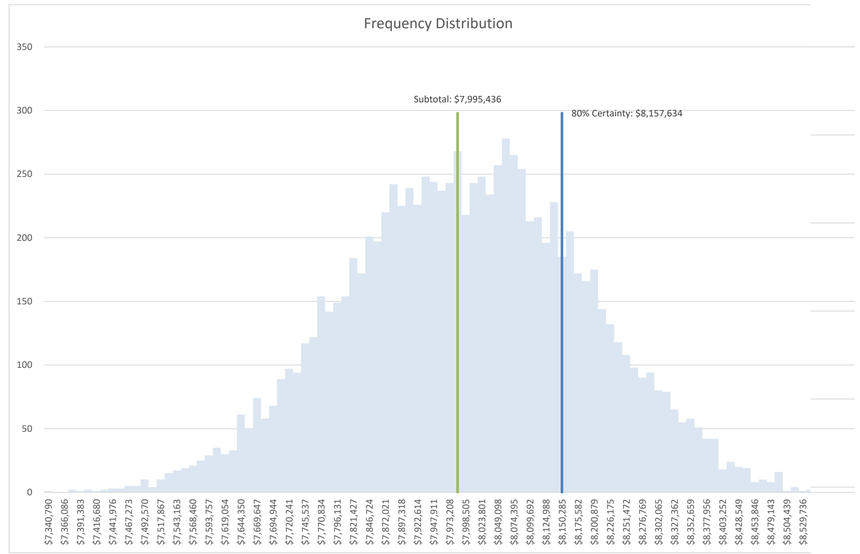
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	24" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	200	$315	$365	$415	$73,000
2	36" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	850	$480	$530	$580	$450,500
3	54" CAST-IN-DRILLED-HOLE CONCRETE PILING (ROCI		LF	30	$1,300	$1,500	$1,700	$45,000
4	78" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	175	$1,350	$1,525	$1,700	$266,875
5	BAR REINFORCING STEEL (BRIDGE)		LB	401057	$3.00	$3.45	$3.90	$1,383,647
6	BRIDGE DECK DRAINAGE SYSTEM		LB	1963	$13	$15	$18	$29,936
7	CONCRETE BARRIER (TYPE 842)		LF	322	$160	$205	$250	$66,010
8	DECORATIVE RAILING (BRIDGE)		LF	3455	$550	$650	$750	$2,245,750
9	ISOLATION CASING		LB	45392	$4.15	$5.83	$7.50	$264,408
10	JOINT SEAL (MR 2")		LF	108	$90	$115	$140	$12,420
11	PRESTRESSING CAST-IN-PLACE CONCRETE		LS	1	$11,000	$13,500	$16,000	$13,500
12	STRUCTURAL CONCRETE, BARRIER SLAB		CY	191	$700	$850	$1,000	$162,350
13	STRUCTURAL CONCRETE, BRIDGE		CY	918	$2,000	$2,200	$2,400	$2,019,600
14	STRUCTURAL CONCRETE, BRIDGE (POLYMER FIBER		CY	625	$1,200	$1,450	$1,700	$906,250
15	STRUCTURAL CONCRETE, BRIDGE FOOTING		CY	8	$1,650	$2,000	$2,350	$16,000
16	STRUCTURE BACKFILL (BRIDGE)		CY	48	$130	$155	$180	$7,440
17	STRUCTURE EXCAVATION (BRIDGE)		CY	131	$200	$250	$300	$32,750
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$7,995,436

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values	
0%	$7,340,790	BASED ON THE ASSUMPTIONS USED
10%	$7,747,811	TO CREATE THE MODEL, DES
20%	$7,830,833	STRUCTURE OFFICE ENGINEER
30%	$7,889,129	RECOMMENDS THAT THE
40%	$7,943,164	PROGRAMMING LEVEL BUDGET FOR
50%	$7,995,885	THIS PROJECT BE DESIGNATED AT THE
60%	$8,046,468	80% FORECAST VALUE.
70%	$8,095,930	
80%	**$8,157,634**	
90%	$8,239,518	
100%	$8,605,626	

BRIDGE COST PER SQUARE FOOT		DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency
BRIDGE REMOVAL		
ESTIMATED COST Subtotal + Bridge	$8,158,000	
TOTAL	$11,965,000	INCLUDES mobilization: 10%, structure TRO: 10% and contingenc 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

X	GENERAL PLAN ESTIMATE		ADVANCE PLANNING ESTIMATE

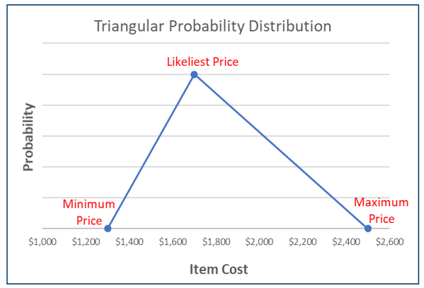
Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	STAIRS-NORTH+SOUTH AT WHIPPLE AVE POC
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	

INPUT



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

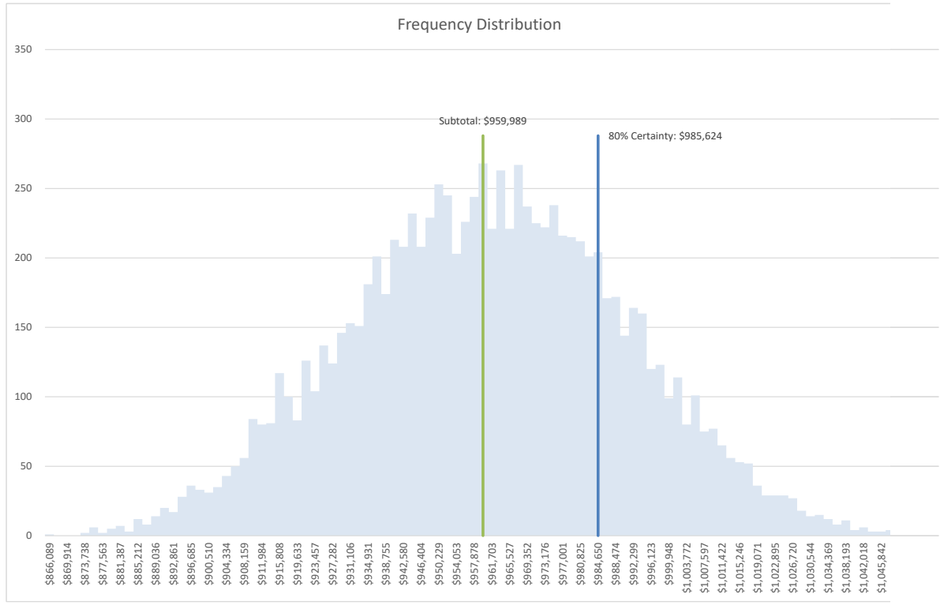
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	36" CAST-IN-DRILLED-HOLE CONCRETE PILING		LF	50	$480	$530	$580	$26,500
2	BAR REINFORCING STEEL		LB	38325	$3.25	$3.75	$4.25	$143,719
3	DECORATIVE RAILING (BRIDGE)		LF	402	$550	$650	$750	$261,300
4	STRUCTURAL CONCRETE		CY	143	$2,600	$3,000	$3,400	$429,000
5	STRUCTURE BACKFILL		CY	49	$170	$205	$240	$10,045
6	STRUCTURE EXCAVATION		CY	365	$220	$245	$270	$89,425
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$959,989

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$866,089
10%	$920,418
20%	$933,998
30%	$943,600
40%	$951,855
50%	$959,987
60%	$967,829
70%	$976,103
80%	**$985,624**
90%	$998,488
100%	$1,057,316

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$986,000
TOTAL	$1,446,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and continge 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

OUTPUT

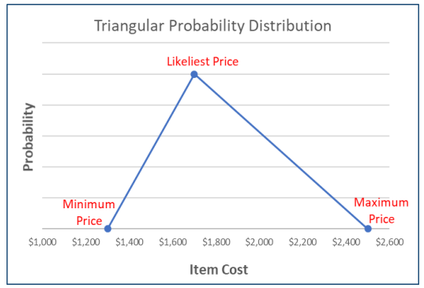
[X] GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	RETAINING WALL NO. 1
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	EUSEBIO VIAJAR

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



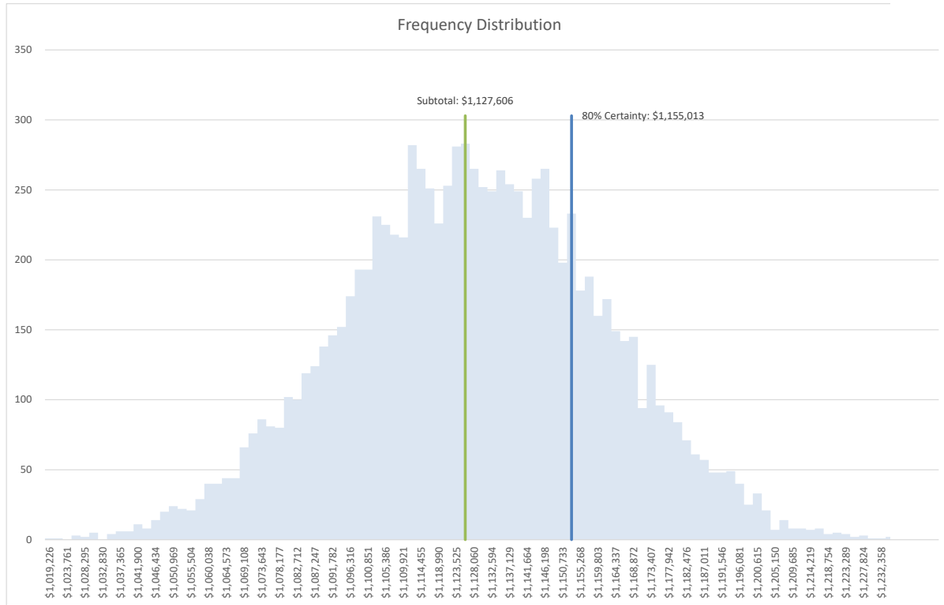
The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	36" DRILLED HOLE	36 inch	LF	759	$200	$250	$300	$189,750
2	BAR REINFORCING STEEL (WALL FACING)		LB	10393	$3.10	$3.40	$3.70	$35,336
3	CABLE RAILING		LF	259	$40	$50	$60	$12,950
4	CLEAN AND PAINT STEEL SOLDIER PILING		LS	1	$76,000	$114,000	$152,000	$114,000
5	CONCRETE SURFACE TEXTURE		SQFT	2137	$60	$70	$80	$149,590
6	LEAN CONCRETE BACKFILL		CY	53	$320	$370	$420	$19,610
7	MINOR CONCRETE (GUTTER) (LF)		LF	259	$80	$105	$130	$27,195
8	PREPARE AND STAIN CONCRETE		SQFT	2137	$17	$20	$22	$42,740
9	STEEL SOLDIER PILE (HP 14 X 73)	HP14*73	LF	2087	$100	$125	$150	$260,875
10	STRUCTURAL CONCRETE, WALL FACING		CY	95	$1,100	$1,300	$1,500	$123,500
11	STRUCTURE BACKFILL (SOLDIER PILE WALL)		CY	110	$150	$190	$230	$20,900
12	STRUCTURE EXCAVATION (SOLDIER PILE WALL)		CY	66	$230	$260	$290	$17,160
13	TIMBER LAGGING		MFBM	19	$5,500	$6,000	$6,500	$114,000
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$1,127,606

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$1,019,226
10%	$1,084,011
20%	$1,098,766
30%	$1,109,161
40%	$1,117,936
50%	$1,126,508
60%	$1,135,374
70%	$1,144,492
80%	**$1,155,013**
90%	$1,169,221
100%	$1,245,963

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$1,155,000
TOTAL	$1,694,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

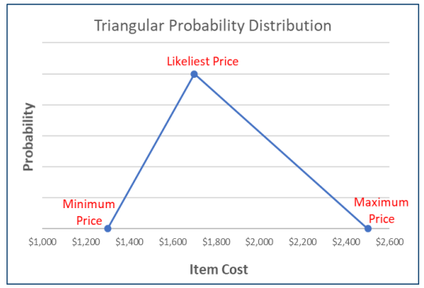
X GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

BRIDGE NAME:	RETAINING WALL NO. 2
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	EUSEBIO VIAJAR

IN EST:	8-16-202
OUT EST:	9/21/2022
DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	

INPUT



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

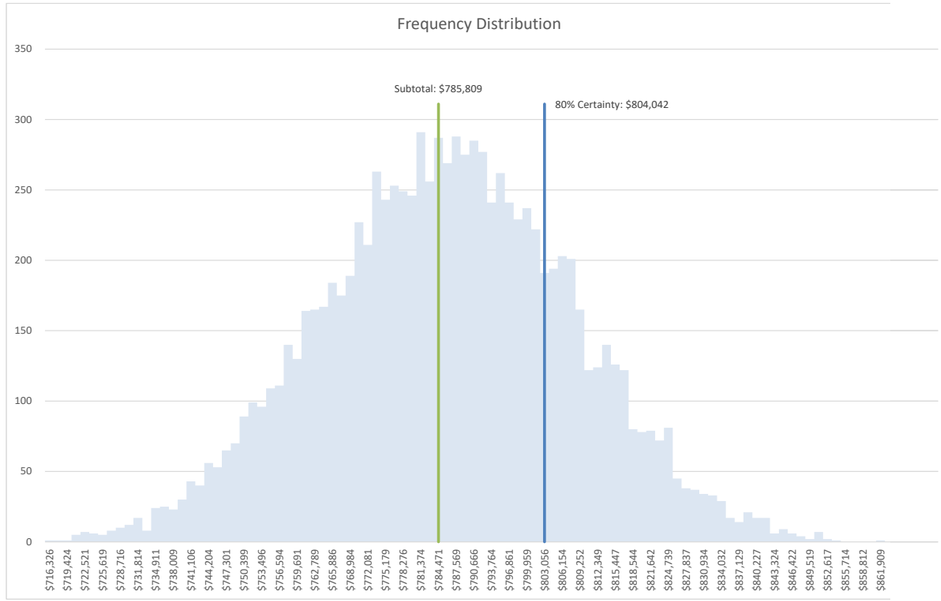
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	36" DRILLED HOLE	36 inch	LF	768	$200	$250	$300	$192,000
2	BAR REINFORCING STEEL (WALL FACING)		LB	8404	$3.10	$3.40	$3.70	$28,574
3	CABLE RAILING		LF	256	$40	$50	$60	$12,800
4	CLEAN AND PAINT STEEL SOLDIER PILING		LS	1	$36,000	$54,000	$72,000	$54,000
5	CONCRETE SURFACE TEXTURE		SQFT	1294	$60	$70	$80	$90,580
6	LEAN CONCRETE BACKFILL		CY	42	$320	$370	$420	$15,540
7	MINOR CONCRETE (GUTTER) (LF)		LF	256	$80	$105	$130	$26,880
8	PREPARE AND STAIN CONCRETE		SQFT	1294	$17	$20	$22	$25,880
9	STEEL SOLDIER PILE (HP 14 X 73)	HP14*73	LF	979	$100	$125	$150	$122,375
10	STRUCTURAL CONCRETE, WALL FACING		CY	78	$1,100	$1,300	$1,500	$101,400
11	STRUCTURE BACKFILL (SOLDIER PILE WALL)		CY	92	$150	$190	$230	$17,480
12	STRUCTURE EXCAVATION (SOLDIER PILE WALL)		CY	55	$230	$260	$290	$14,300
13	TIMBER LAGGING		MFBM	14	$5,500	$6,000	$6,500	$84,000
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$785,809

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast Values
0%	$716,326
10%	$756,384
20%	$766,232
30%	$773,436
40%	$779,725
50%	$785,270
60%	$790,820
70%	$796,920
80%	**$804,042**
90%	$813,706
100%	$871,202

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$804,000
TOTAL	$1,179,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

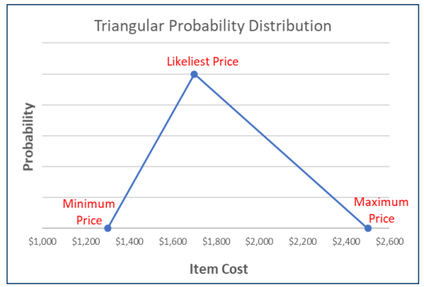
INPUT

X GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

BRIDGE NAME:	RETAINING WALL NO. 3
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

IN EST:	8/16/2022
OUT EST:	9/21/2022
DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

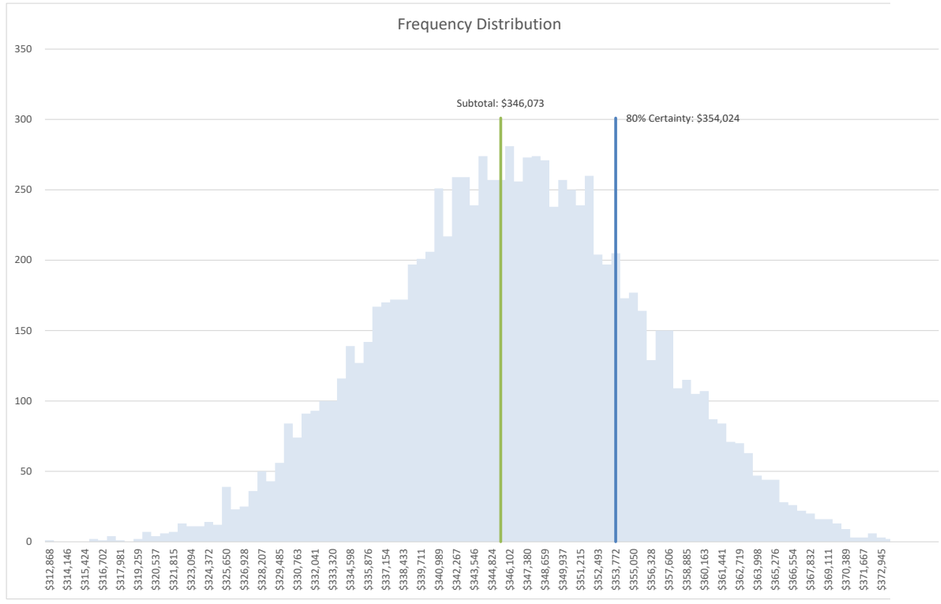
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	BAR REINFORCING STEEL (RETAINING WALL)		LB	7356	$2.50	$3.00	$3.50	$22,068
2	CABLE RAILING		LF	90	$40	$50	$60	$4,500
3	CONCRETE SURFACE TEXTURE		SQFT	471	$60	$70	$80	$32,970
4	MINOR CONCRETE (GUTTER) (LF)		LF	90	$80	$105	$130	$9,450
5	STRUCTURAL CONCRETE, RETAINING WALL		CY	96	$2,050	$2,250	$2,450	$216,000
6	STRUCTURE BACKFILL (RETAINING WALL)		CY	213	$80	$105	$130	$22,365
7	STRUCTURE EXCAVATION (RETAINING WALL)		CY	242	$120	$160	$200	$38,720
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$346,073

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT Included

Percentiles: Forecast Values

0%	$312,868
10%	$333,793
20%	$337,957
30%	$341,073
40%	$343,657
50%	$346,069
60%	$348,453
70%	$351,011
80%	**$354,024**
90%	$358,291
100%	$376,780

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$354,000
TOTAL	$519,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

OUTPUT

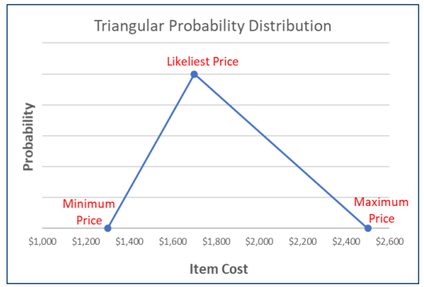
[X] GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	RETAINING WALL NO. 4
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	

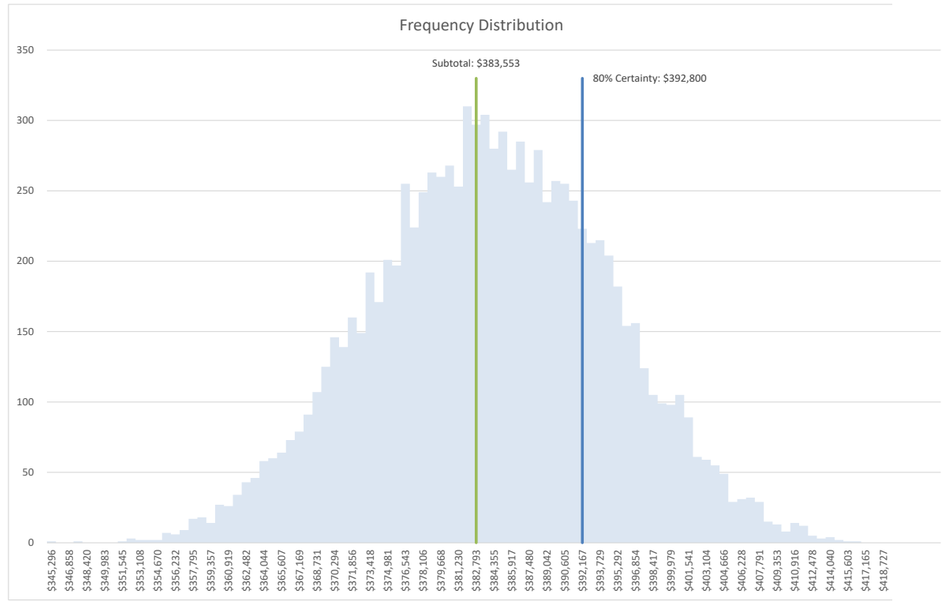


The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	BAR REINFORCING STEEL (RETAINING WALL)		LB	8991	$2.50	$3.00	$3.50	$26,973
2	CABLE RAILING		LF	43	$40	$50	$60	$2,150
3	CONCRETE SURFACE TEXTURE		SQFT	699	$60	$70	$80	$48,930
4	MINOR CONCRETE (GUTTER) (LF)		LF	43	$80	$105	$130	$4,515
5	STRUCTURAL CONCRETE, RETAINING WALL		CY	98	$2,050	$2,250	$2,450	$220,500
6	STRUCTURE BACKFILL (RETAINING WALL)		CY	285	$80	$105	$130	$29,925
7	STRUCTURE EXCAVATION (RETAINING WALL)		CY	316	$120	$160	$200	$50,560
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$383,553

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles: Forecast values

0%	$345,296
10%	$370,014
20%	$374,695
30%	$378,109
40%	$381,053
50%	$383,723
60%	$386,511
70%	$389,490
80%	**$392,800**
90%	$397,188
100%	$423,415

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$393,000
TOTAL	$576,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

Comments

PROBABILISTIC STRUCTURE COST ESTIMATE

X	GENERAL PLAN ESTIMATE		ADVANCE PLANNING ESTIMATE

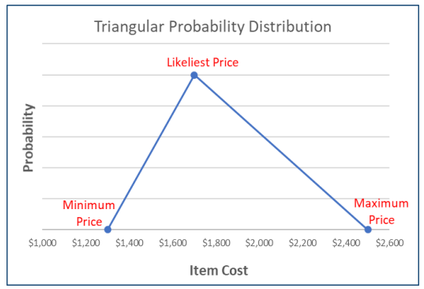
Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	RETAINING WALL NO. 5
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	EUSEBIO VIAJAR

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	

INPUT



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

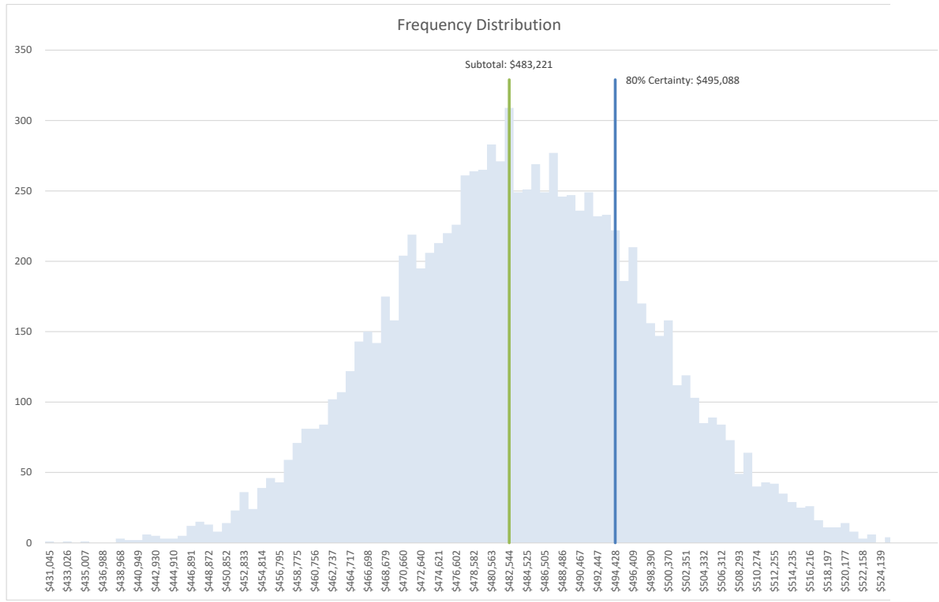
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	36" DRILLED HOLE		LF	397	$200	$250	$300	$99,250
2	BAR REINFORCING STEEL (WALL FACING)		LB	4115	$3.10	$3.40	$3.70	$13,991
3	CABLE RAILING		LF	103	$40	$50	$60	$5,150
4	CLEAN AND PAINT STEEL SOLDIER PILING		LS	1	$31,000	$46,000	$61,000	$46,000
5	CONCRETE SURFACE TEXTURE		SQFT	901	$60	$70	$80	$63,070
6	LEAN CONCRETE BACKFILL		CY	21	$320	$370	$420	$7,770
7	MINOR CONCRETE (GUTTER)(LF)		LF	103	$80	$105	$130	$10,815
8	PREPARE AND STAIN CONCRETE		SQFT	901	$17	$20	$22	$18,020
9	STEEL SOLDIER PILE (HP 14 X 73)		LF	837	$100	$125	$150	$104,625
10	STRUCTURAL CONCRETE, WALL FACING		CY	38	$1,100	$1,300	$1,500	$49,400
11	STRUCTURE BACKFILL (SOLDIER PILE WALL)		CY	15	$150	$190	$230	$2,850
12	STRUCTURE EXCAVATION (SOLDIER PILE WALL)		CY	78	$230	$260	$290	$20,280
13	TIMBER LAGGING		MFBM	7	$5,500	$6,000	$6,500	$42,000
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$483,221

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles: Forecast Values

0%	$431,045
10%	$464,647
20%	$470,760
30%	$475,432
40%	$479,380
50%	$482,861
60%	$486,778
70%	$490,703
80%	**$495,088**
90%	$501,242
100%	$530,081

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$495,000
TOTAL	$726,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

OUTPUT

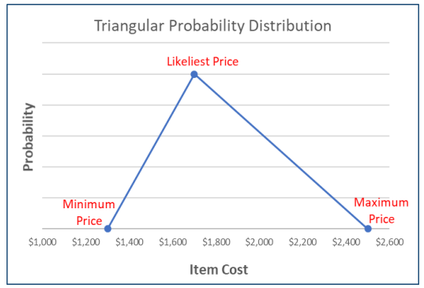
[X] GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	RETAINING WALL NO. 6
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



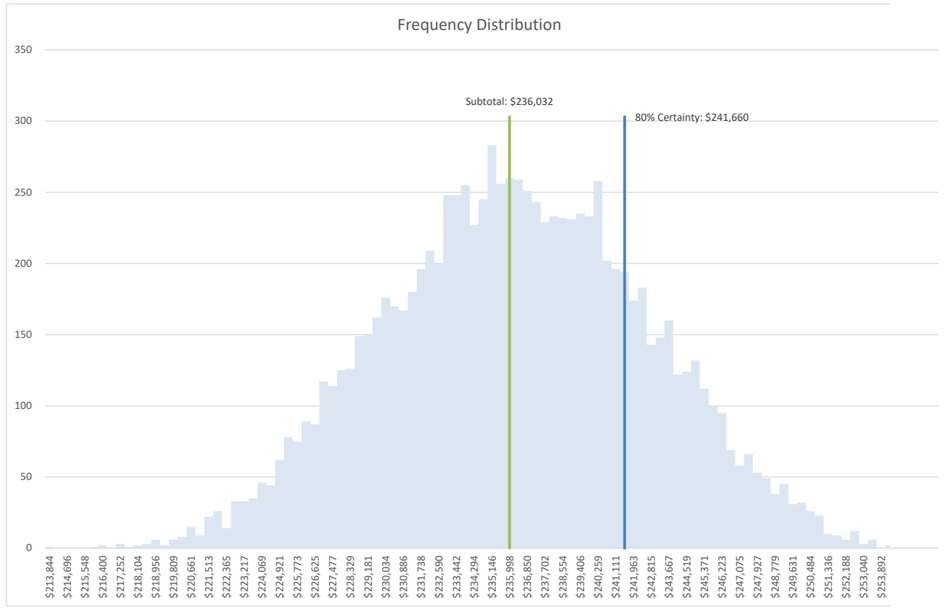
The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	BAR REINFORCING STEEL (RETAINING WALL)		LB	4864	$2.50	$3.00	$3.50	$14,592
2	CABLE RAILING		LF	64	$40	$50	$60	$3,200
3	CONCRETE SURFACE TEXTURE		SQFT	379	$60	$70	$80	$26,530
4	MINOR CONCRETE (GUTTER) (LF)		LF	64	$80	$105	$130	$6,720
5	STRUCTURAL CONCRETE, RETAINING WALL		CY	64	$2,050	$2,250	$2,450	$144,000
6	STRUCTURE BACKFILL (RETAINING WALL)		CY	142	$80	$105	$130	$14,910
7	STRUCTURE EXCAVATION (RETAINING WALL)		CY	163	$120	$160	$200	$26,080
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$236,032

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles:	Forecast values
0%	$213,844
10%	$227,702
20%	$230,486
30%	$232,683
40%	$234,431
50%	$236,052
60%	$237,788
70%	$239,645
80%	**$241,660**
90%	$244,471
100%	$256,448

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR THIS PROJECT BE DESIGNATED AT THE 80% FORECAST VALUE.

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$242,000
TOTAL	$354,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

OUTPUT

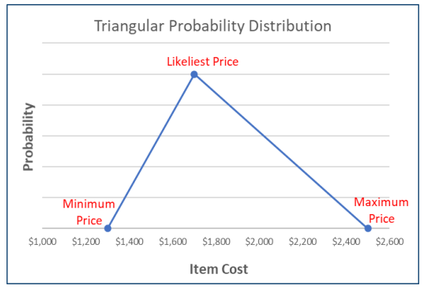
[X] GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	RETAINING WALL NO. 7
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



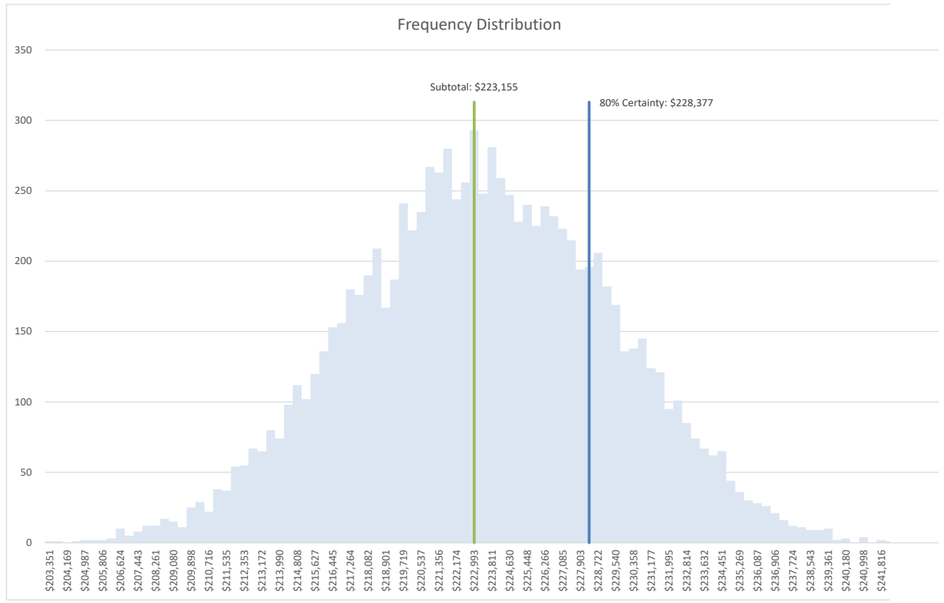
The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	BAR REINFORCING STEEL (RETAINING WALL)		LB	6200	$2.50	$3.00	$3.50	$18,600
2	CONCRETE SURFACE TEXTURE		SQFT	523	$60	$70	$80	$36,610
3	STRUCTURAL CONCRETE, RETAINING WALL		CY	55	$2,050	$2,250	$2,450	$123,750
4	STRUCTURE BACKFILL (RETAINING WALL)		CY	267	$80	$105	$130	$28,035
5	STRUCTURE EXCAVATION (RETAINING WALL)		CY	101	$120	$160	$200	$16,160
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$223,155

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles: Forecast values

0%	$203,351
10%	$215,364
20%	$217,924
30%	$219,921
40%	$221,547
50%	$223,091
60%	$224,687
70%	$226,445
80%	**$228,377**
90%	$230,992
100%	$244,272

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$228,000
TOTAL	$335,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

OUTPUT

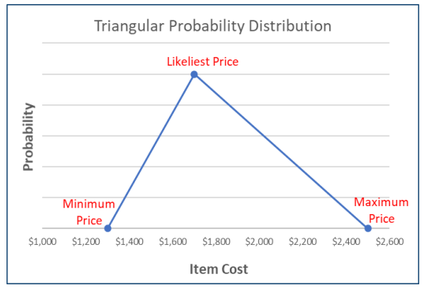
[X] GENERAL PLAN ESTIMATE [ ] ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

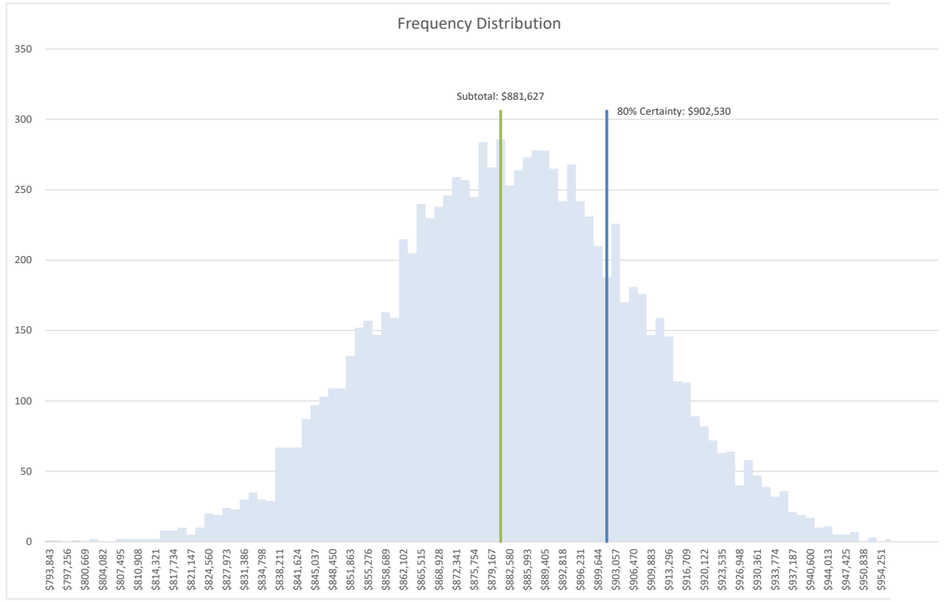
BRIDGE NAME:	RETAINING WALL NO. 8
BRIDGE NUMBER:	34-xxxx
TYPE:	-
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	JOSEPH DEMARTINI

DISTRICT:	04
CO:	SF
RTE:	280
PM:	
DEPTH	
LENGTH	
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



CONTRACT ITEMS		TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	BAR REINFORCING STEEL (RETAINING WALL)		LB	26164	$2.50	$3.00	$3.50	$78,492
2	CONCRETE SURFACE TEXTURE		SQFT	1677	$60	$70	$80	$117,390
3	STRUCTURAL CONCRETE, RETAINING WALL		CY	217	$2,050	$2,250	$2,450	$488,250
4	STRUCTURE BACKFILL (RETAINING WALL)		CY	863	$80	$105	$130	$90,615
5	STRUCTURE EXCAVATION (RETAINING WALL)		CY	668	$120	$160	$200	$106,880
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$881,627

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles: Forecast values

0%	$793,843
10%	$850,489
20%	$861,439
30%	$868,878
40%	$875,626
50%	$881,930
60%	$888,161
70%	$894,717
80%	**$902,530**
90%	$912,646
100%	$964,490

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$903,000
TOTAL	$1,324,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

Comments

PROBABILISTIC STRUCTURE COST ESTIMATE

INPUT

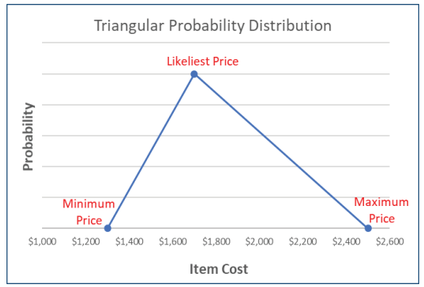
X GENERAL PLAN ESTIMATE ADVANCE PLANNING ESTIMATE

Revised -January 9, 2020

IN EST:	8/16/2022
OUT EST:	9/21/2022

BRIDGE NAME:	SOUTHERN FREEWAY VIADUCT
BRIDGE NUMBER:	34-0046
TYPE:	RC BOX GIRDER
EA:	04-0Q120
PROJECT ID:	04 1800 0045
ACCELERATED BRIDGE PROJECT	NO
DESIGN SECTION:	09
# OF STRUCTURES IN PROJECT :	12
PRICES BY :	AVH
PRICES CHECKED BY :	PKH
QUANTITIES BY:	SAM KOTALAWALA

DISTRICT:	04
CO:	SF
RTE:	280
PM:	R4.40L
DEPTH	
LENGTH	21588
WIDTH	
AREA	
EST. NO.	
COST INDEX:	
DATE:	
DATE:	



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

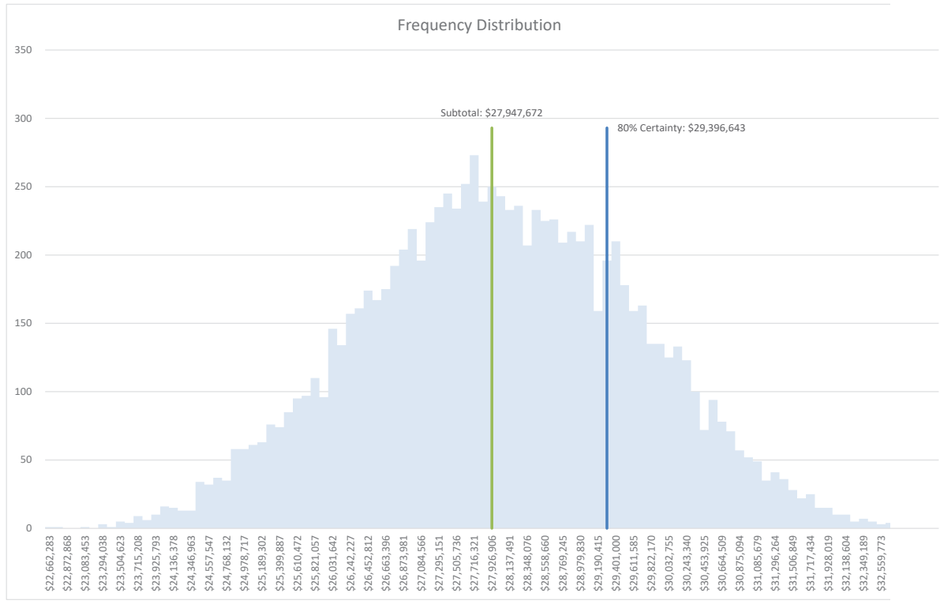
	CONTRACT ITEMS	TYPE	UNIT	QUANTITY	ITEM PRICE RANGE MINIMUM	LIKELIEST	MAXIMUM	AMOUNT
1	CLEAN EXPANSION JOINT		LF	3704	$35	$50	$65	$185,200
2	FURNISH POLYESTER CONCRETE OVERLAY		CF	90198.71	$95	$120	$145	$10,823,845
3	JOINT SEAL (MR 2")		LF	3737	$90	$115	$140	$429,755
4	PLACE POLYESTER CONCRETE OVERLAY		SQFT	1082384	$3.75	$4.75	$5.75	$5,141,324
5	PREPARE CONCRETE BRIDGE DECK SURFACE		SQFT	1082384	$0.80	$1.25	$1.70	$1,352,980
6	PUBLIC SAFETY PLAN		LS	1	$2,017	$2,333	$2,650	$2,333
7	RAPID SETTING CONCRETE (PATCH)		CF	13530	$60	$90	$120	$1,217,700
8	REMOVE UNSOUND CONCRETE		CF	13530	$80	$110	$140	$1,488,300
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								
							SUBTOTAL	$20,641,437

	TYPE	UNIT	QUANTITY	MINIMUM	LIKELIEST	MAXIMUM	
BRIDGE REMOVAL		SQFT					

Comments

OUTPUT

This probabilistic estimate forecasts a range of likely final costs and their associated probabilities of occurring, or confidence levels. Item cost uncertainty is captured by estimating a range of prices: minimum, likely and maximum. The estimate model assumes a triangular distribution for each item, independent from the other items. A Monte Carlo simulation with 10,000 trials is used to develop a reasonable range of possible cost combinations.



Time Related Overhead, Mobilization and Contingency NOT INCLUDED

Percentiles: Forecast values

0%	$22,662,283
10%	$25,802,939
20%	$26,531,517
30%	$27,069,017
40%	$27,515,852
50%	$27,935,961
60%	$28,388,526
70%	$28,866,344
80%	**$29,396,643**
90%	$30,109,219
100%	$33,191,528

BASED ON THE ASSUMPTIONS USED TO CREATE THE MODEL, DES STRUCTURE OFFICE ENGINEER RECOMMENDS THAT THE PROGRAMMING LEVEL BUDGET FOR

BRIDGE COST PER SQUARE FOOT	
BRIDGE REMOVAL	
ESTIMATED COST Subtotal + Bridge	$21,711,000
TOTAL	$31,844,000

DOES NOT INCLUDE time related overhead (TRO), mobilization and contingency

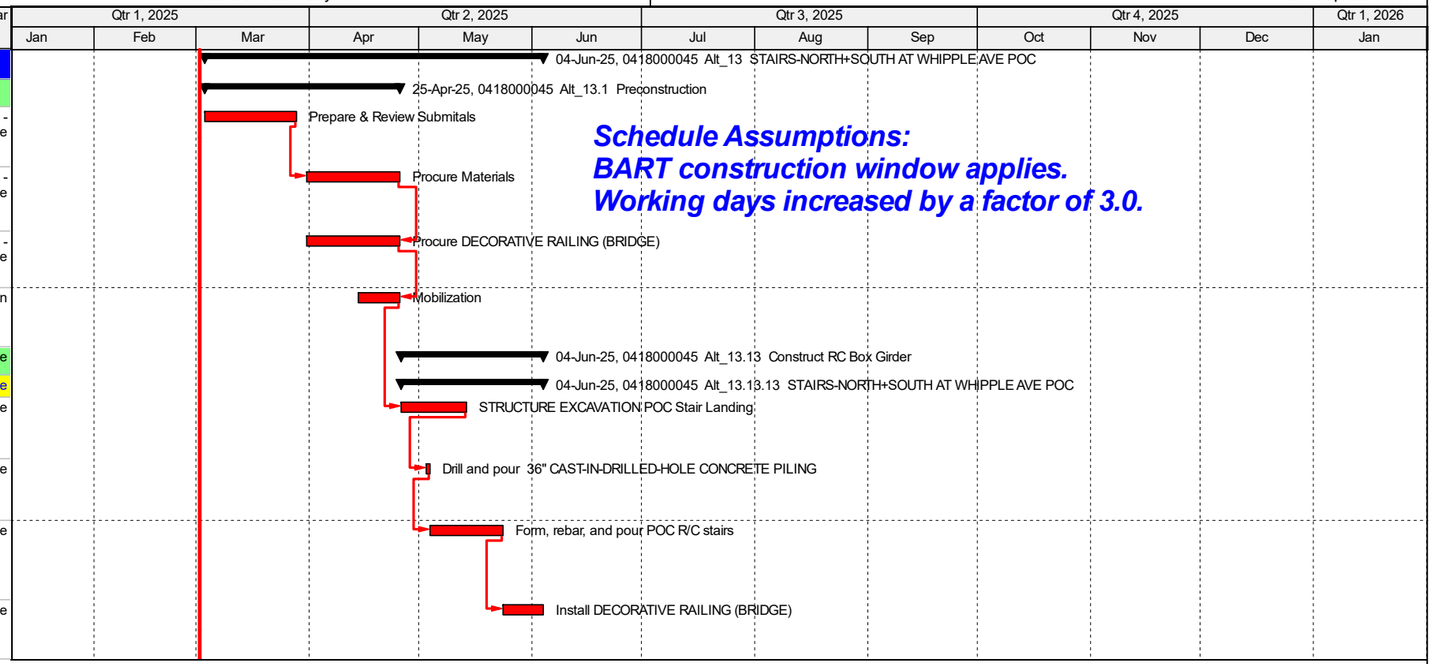
INCLUDES mobilization: 10%, structure TRO: 10% and contingency 20%

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_14 WHIPPLE AVE POC Alt 1		112	03-Mar-25	10-Aug-25	
0418000045 Alt_14.1 Preconstruction		40	03-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1000	Prepare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1025	Procure Materials	20	31-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1030	Procure DECORATIVE RAILING (BRIDGE)	20	31-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1050	Mobilization	10	14-Apr-25	25-Apr-25	Corporate - Standard Full Time
0418000045 Alt_14.14_A Construct CIP PS/RC BOX GIRDER Main Span ALT		29	28-Apr-25	06-Jun-25	5 day constuction
0418000045 Alt_14.14_A.14_A WHIPPLE AVE Main Span		29	28-Apr-25	06-Jun-25	5 day constuction
B1000	STRUCTURE EXCAVATION (BRIDGE)	3	28-Apr-25	30-Apr-25	5 day constuction
B1040	Drill and pour 78" Type 2 CAST-IN-DRILLED-HOLE CONCRETE PILING with 54" (ROCK SOCKET) Q =3 I Length= 175'+30' =205'	5	01-May-25	07-May-25	5 day constuction
B1050	Form, rebar, and pour Main span 54" OCtogonal Columns and Bent caps	6	08-May-25	15-May-25	5 day constuction
B1060	FRP Main span single cell CIP/PS Box gider bridge	7	01-May-25	09-May-25	5 day constuction
B1070	FRP Deck (Polyfiber)	2	12-May-25	13-May-25	5 day constuction
B1080	Post tension single cell CIP Box girder Bridge	3	14-May-25	16-May-25	5 day constuction
B1090	Cure Deck	5	19-May-25	23-May-25	5 day constuction
B1250	Install DECORATIVE RAILING (BRIDGE)	14	19-May-25	06-Jun-25	5 day constuction
0418000045 Alt_14.14_B Construct Pedstrian Over Crossing Bridge (POC) R		58	17-May-25	10-Aug-25	
0418000045 Alt_14.14_B.14_B WHIPPLE AVE POC RAMPS		58	17-May-25	10-Aug-25	
C1000	STRUCTURE EXCAVATION (BRIDGE)	5	17-May-25	20-May-25	BART schedule
C1010	Drill and pour 24" CAST-IN-DRILLED-HOLE CONCRETE PILING at Abutments Q= 4 @ 50'/ pil	2	20-May-25	21-May-25	BART schedule
C1020	Drill and pour POC 36" CAST-IN-DRILLED-HOLE CONCRETE PILING Q = 17 @ 50'/pile	7	22-May-25	26-May-25	BART schedule
C1030	Form, rebar, and pour POC 36" Octogonal Columns and Bent caps Q= 17	7	27-May-25	01-Jun-25	BART schedule
C1040	FRP POC Abutment and approach ramps	6	22-May-25	26-May-25	BART schedule
C1050	FRP 1'-8" CIP R/C Slab bridge (Polyfiber)	11	01-Jun-25	09-Jun-25	BART schedule
C1060	Cure R/C Slab bridge	5	09-Jun-25	13-Jun-25	7 day construction
C1070	Install DECORATIVE RAILING (BRIDGE)	82	09-Jun-25	10-Aug-25	BART schedule
0418000045 Alt_14.14_C Construct Barrier Slab		12	09-Jun-25	24-Jun-25	5 day constuction
0418000045 Alt_14.14_C.14_C WHIPPLE AVE Barrier Slab		12	09-Jun-25	24-Jun-25	5 day constuction
D1000	STRUCTURE EXCAVATION (BRIDGE)	5	09-Jun-25	13-Jun-25	5 day constuction
D1010	Form, rebar, and pour Barrier slab	4	16-Jun-25	19-Jun-25	5 day constuction
D1020	Place CONCRETE BARRIER (TYPE 842)	3	20-Jun-25	24-Jun-25	5 day constuction

Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_13 STAIRS-NORTH+SOUTH AT WHIPPL		65	03-Mar-25	04-Jun-25	
0418000045 Alt_13.1 Preconstruction		39	03-Mar-25	25-Apr-25	
A1010	Prepare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1020	Procure Materials	20	31-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1030	Procure DECORATIVE RAILING (BRIDGE)	20	31-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1040	Mobilization	10	14-Apr-25	25-Apr-25	5 day constuction
0418000045 Alt_13.13 Construct RC Box Girder		53	26-Apr-25	04-Jun-25	BART schedule
0418000045 Alt_13.13.13 STAIRS-NORTH+SOUTH AT WHIPPLE AVE F		53	26-Apr-25	04-Jun-25	BART schedule
B1000	STRUCTURE EXCAVATION POC Stair Landing	25	26-Apr-25	14-May-25	BART schedule
B1010	Drill and pour 36" CAST-IN-DRILLED-HOLE CONCRETE PILING	1	03-May-25	04-May-25	BART schedule
B1020	Form, rebar, and pour POC R/C stairs	27	04-May-25	24-May-25	BART schedule
B1030	Install DECORATIVE RAILING (BRIDGE)	15	24-May-25	04-Jun-25	BART schedule

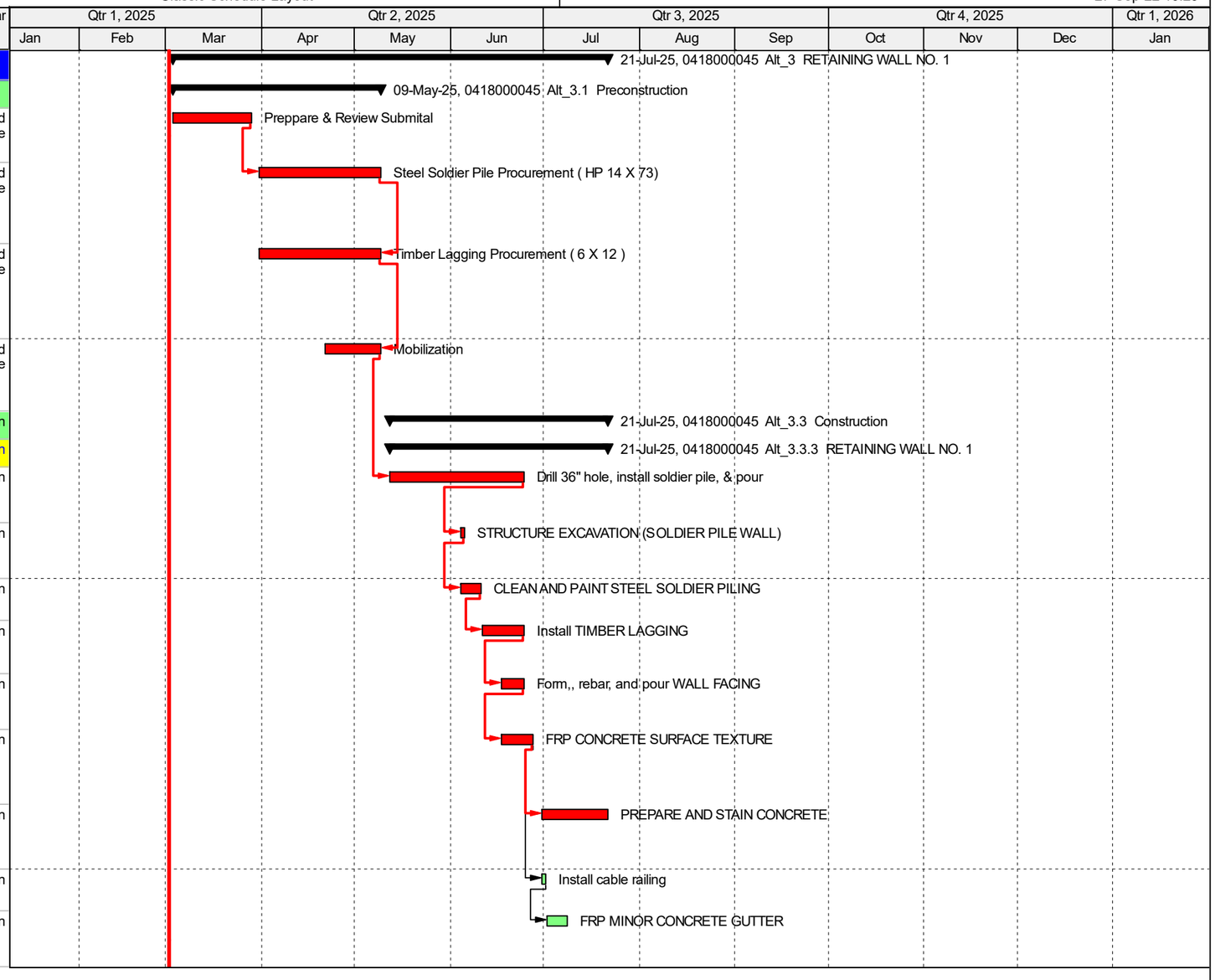


Schedule Assumptions:
BART construction window applies.
Working days increased by a factor of 3.0.

Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

TASK filter: All Activities

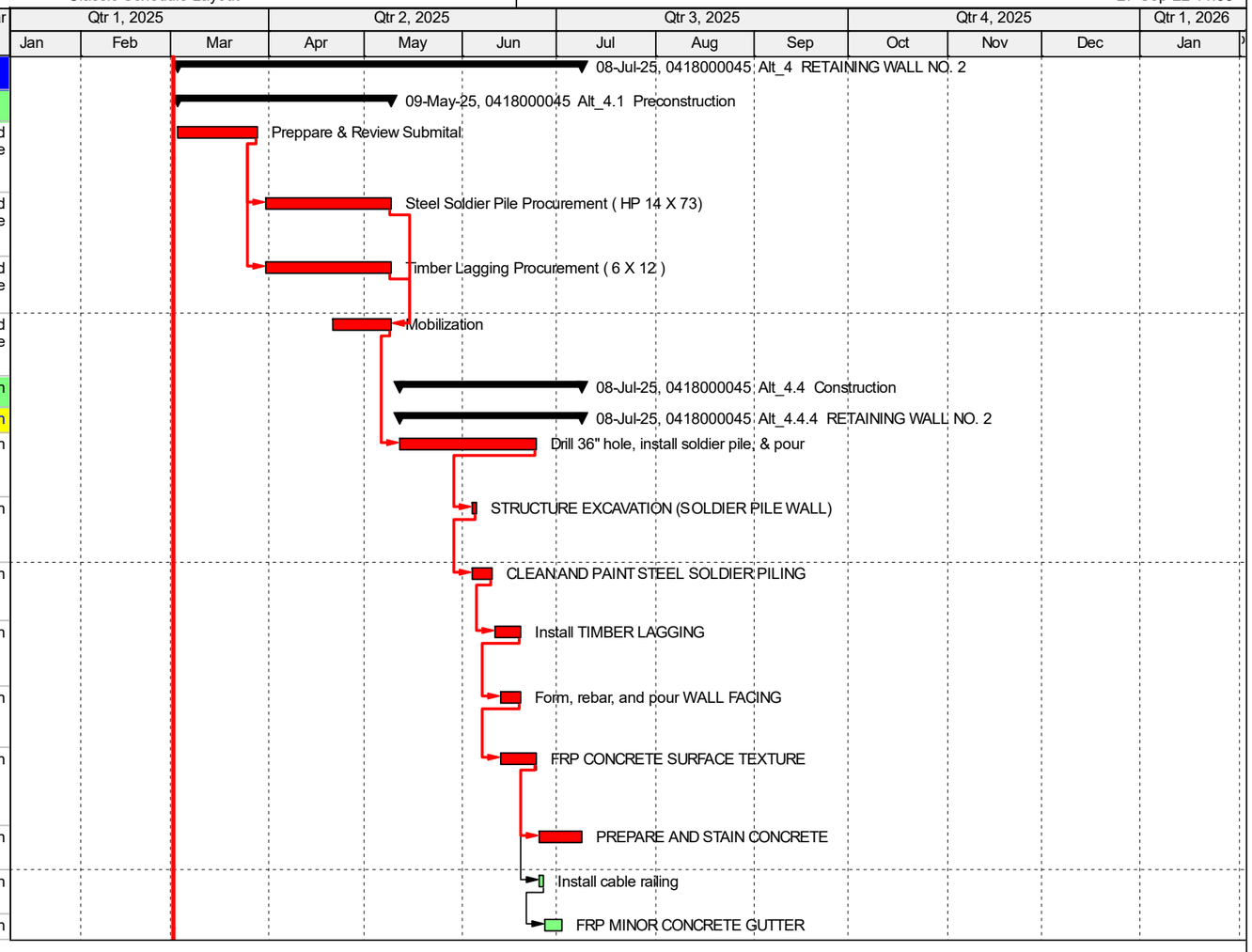
Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_3 RETAINING WAI		98	03-Mar-25	21-Jul-25	
0418000045 Alt_3.1 Preconstruct		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submital	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1030	Steel Soldier Pile Procurement (HP 14 X 73)	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1040	Timber Lagging Procurement (6 X 12)	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_3.3 Construction		49	12-May-25	21-Jul-25	5 day constuction
0418000045 Alt_3.3.3 RETAINING WALL N		49	12-May-25	21-Jul-25	5 day constuction
B1000	Drill 36" hole, install soldier pile, & pour	31	12-May-25	24-Jun-25	5 day constuction
B1010	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	2	04-Jun-25	05-Jun-25	5 day constuction
B1020	CLEAN AND PAINT STEEL SOLDIER PILING	5	04-Jun-25	10-Jun-25	5 day constuction
B1030	Install TIMBER LAGGING	10	11-Jun-25	24-Jun-25	5 day constuction
B1040	Form,, rebar, and pour WALL FACING	6	17-Jun-25	24-Jun-25	5 day constuction
B1050	FRP CONCRETE SURFACE TEXTURE	9	17-Jun-25	27-Jun-25	5 day constuction
B1060	PREPARE AND STAIN CONCRETE	15	30-Jun-25	21-Jul-25	5 day constuction
B1070	Install cable railing	2	30-Jun-25	01-Jul-25	5 day constuction
B1080	FRP MINOR CONCRETE GUTTER	4	02-Jul-25	08-Jul-25	5 day constuction



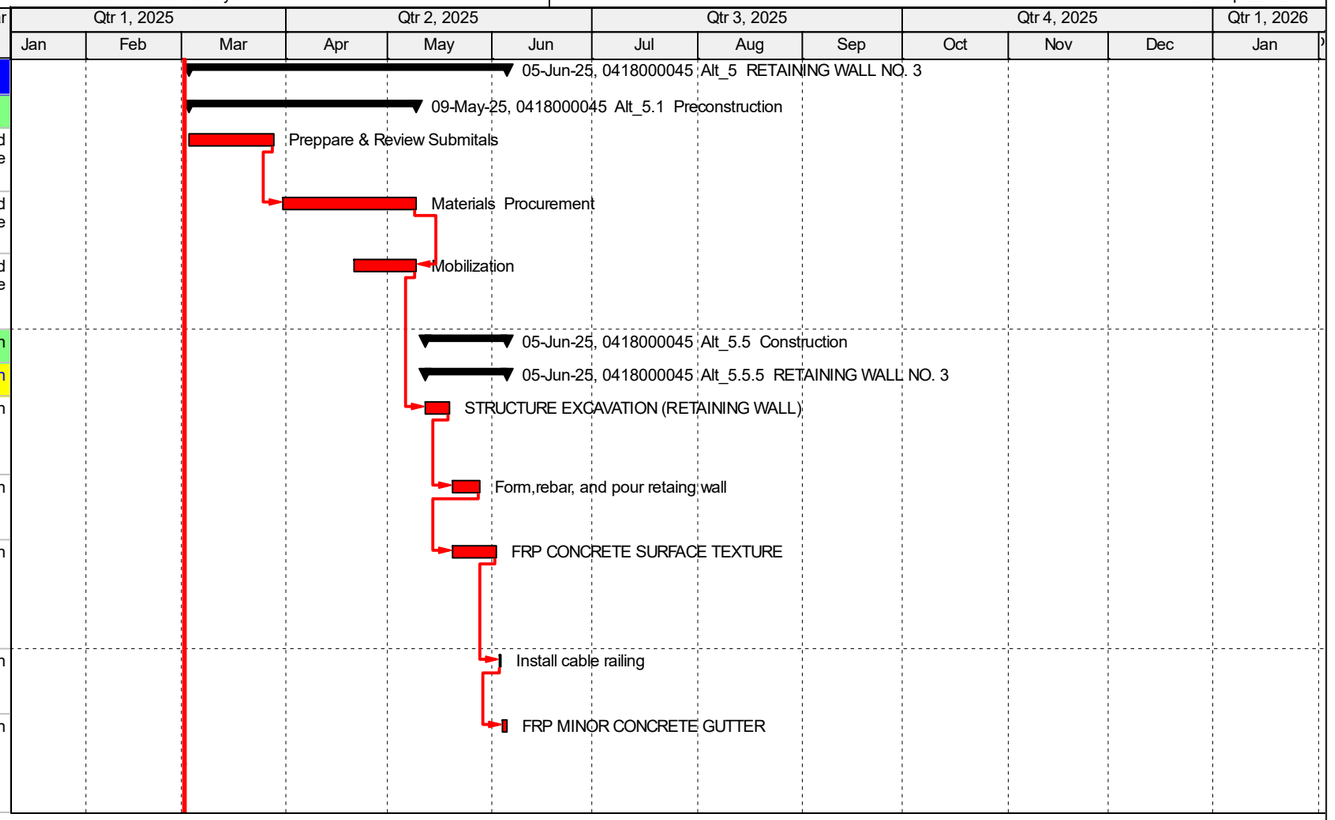
Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_4 RETAINING WALL NO. 2		89	03-Mar-25	08-Jul-25	
0418000045 Alt_4.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submital	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1030	Steel Soldier Pile Procurement (HP 14 X 73)	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1040	Timber Lagging Procurement (6 X 12)	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_4.4 Construction		40	12-May-25	08-Jul-25	5 day constuction
0418000045 Alt_4.4.4 RETAINING WALL NO. 2		40	12-May-25	08-Jul-25	5 day constuction
B1000	Drill 36" hole, install soldier pile, & pour	31	12-May-25	24-Jun-25	5 day constuction
B1010	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	2	04-Jun-25	05-Jun-25	5 day constuction
B1020	CLEAN AND PAINT STEEL SOLDIER PILING	5	04-Jun-25	10-Jun-25	5 day constuction
B1030	Install TIMBER LAGGING	7	11-Jun-25	19-Jun-25	5 day constuction
B1040	Form, rebar, and pour WALL FACING	5	13-Jun-25	19-Jun-25	5 day constuction
B1050	FRP CONCRETE SURFACE TEXTURE	8	13-Jun-25	24-Jun-25	5 day constuction
B1060	PREPARE AND STAIN CONCRETE	9	25-Jun-25	08-Jul-25	5 day constuction
B1070	Install cable railing	2	25-Jun-25	26-Jun-25	5 day constuction
B1080	FRP MINOR CONCRETE GUTTER	4	27-Jun-25	02-Jul-25	5 day constuction



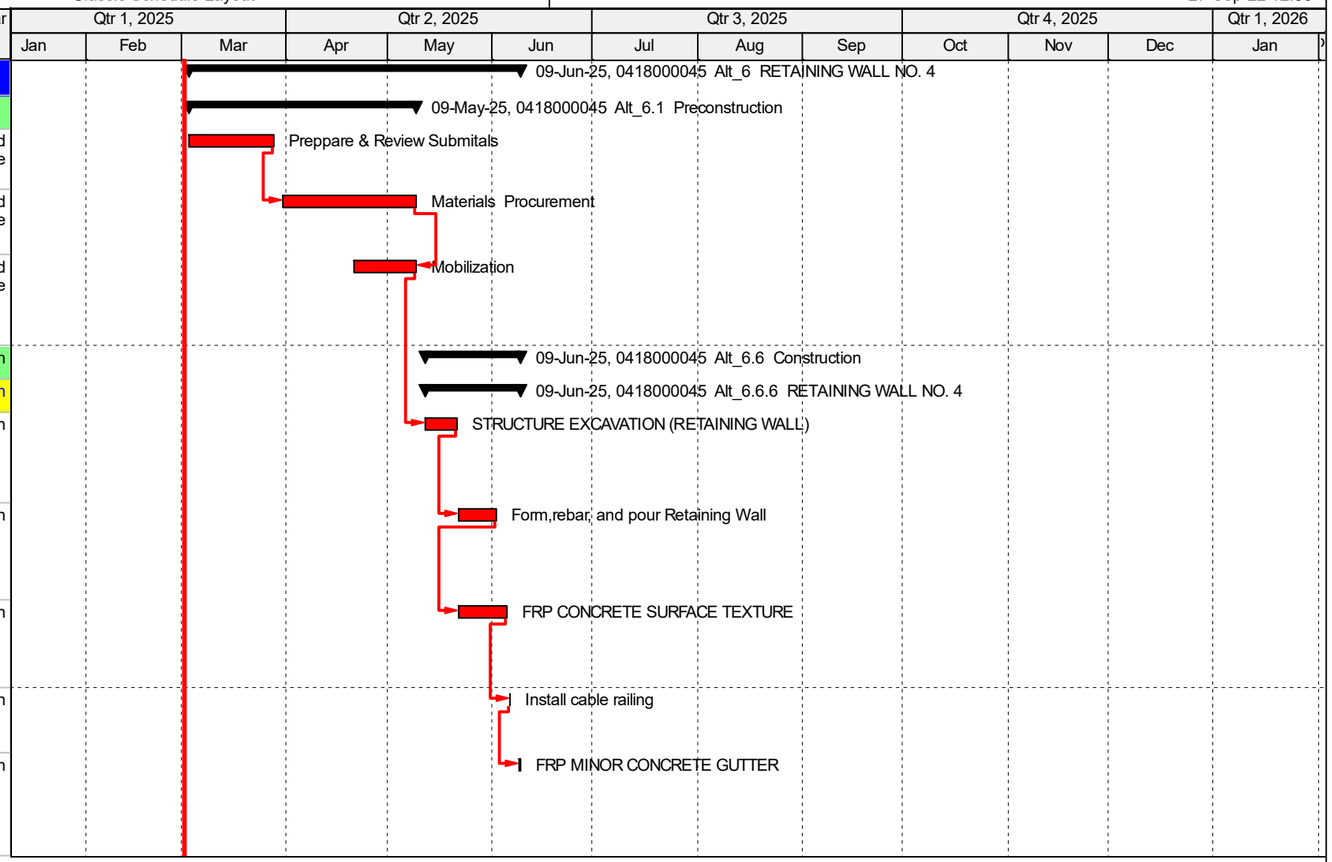
Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_5 RETAINING WALL NO. 3		67	03-Mar-25	05-Jun-25	
0418000045 Alt_5.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1040	Materials Procurement	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_5.5 Construction		18	12-May-25	05-Jun-25	5 day constuction
0418000045 Alt_5.5.5 RETAINING WALL NO. 3		18	12-May-25	05-Jun-25	5 day constuction
B1010	STRUCTURE EXCAVATION (RETAINING WALL)	6	12-May-25	19-May-25	5 day constuction
B1040	Form,rebar, and pour retaing wall	6	20-May-25	28-May-25	5 day constuction
B1050	FRP CONCRETE SURFACE TEXTURE	9	20-May-25	02-Jun-25	5 day constuction
B1060	Install cable railing	1	03-Jun-25	03-Jun-25	5 day constuction
B1070	FRP MINOR CONCRETE GUTTER	2	04-Jun-25	05-Jun-25	5 day constuction



Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

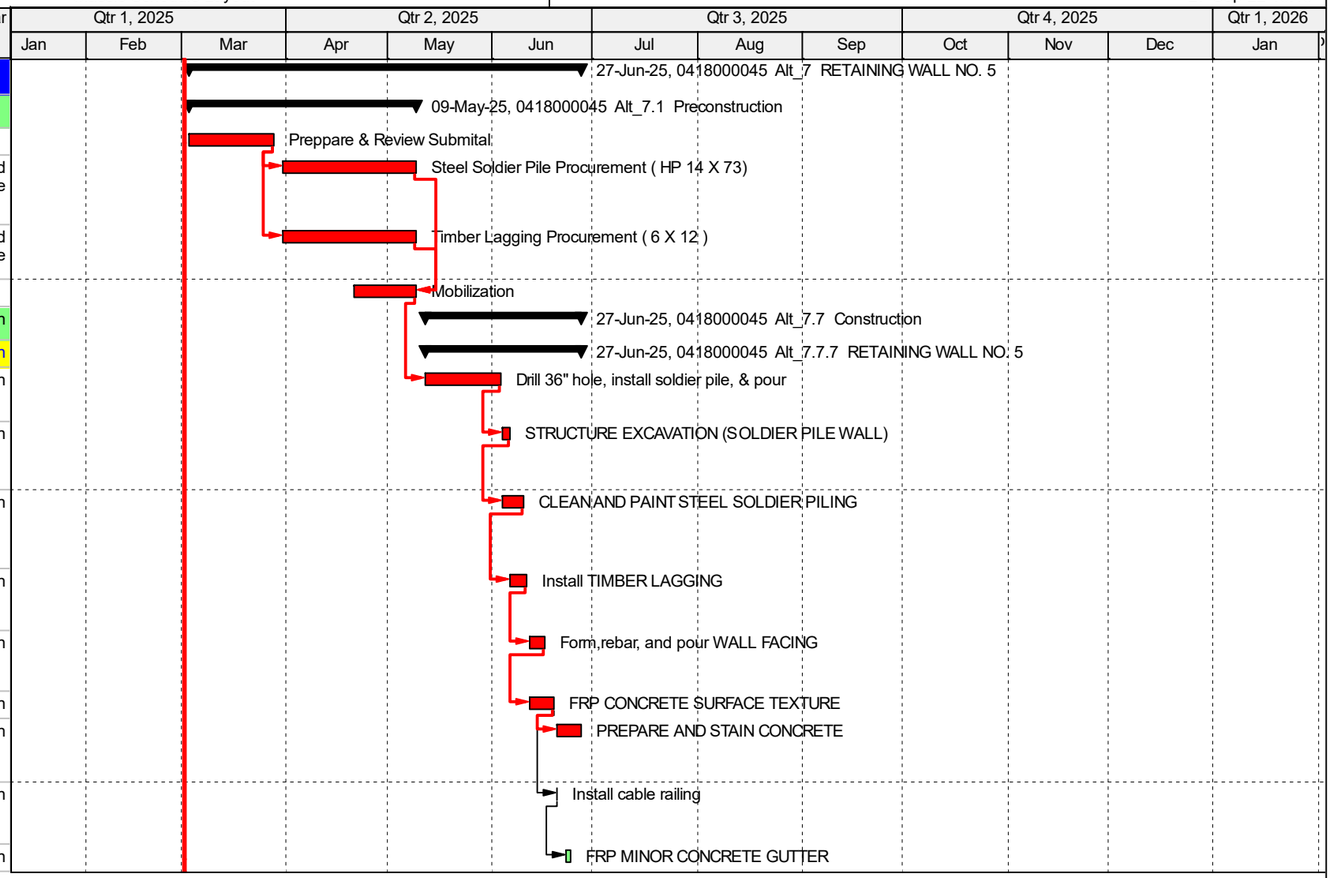
Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_6 RETAINING WALL NO. 4		69	03-Mar-25	09-Jun-25	
0418000045 Alt_6.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1040	Materials Procurement	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_6.6 Construction		20	12-May-25	09-Jun-25	5 day constuction
0418000045 Alt_6.6.6 RETAINING WALL NO. 4		20	12-May-25	09-Jun-25	5 day constuction
B1010	STRUCTURE EXCAVATION (RETAINING WALL)	8	12-May-25	21-May-25	5 day constuction
B1040	Form,rebar, and pour Retaining Wall	7	22-May-25	02-Jun-25	5 day constuction
B1050	FRP CONCRETE SURFACE TEXTURE	10	22-May-25	05-Jun-25	5 day constuction
B1060	Install cable railing	1	06-Jun-25	06-Jun-25	5 day constuction
B1070	FRP MINOR CONCRETE GUTTER	1	09-Jun-25	09-Jun-25	5 day constuction



Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

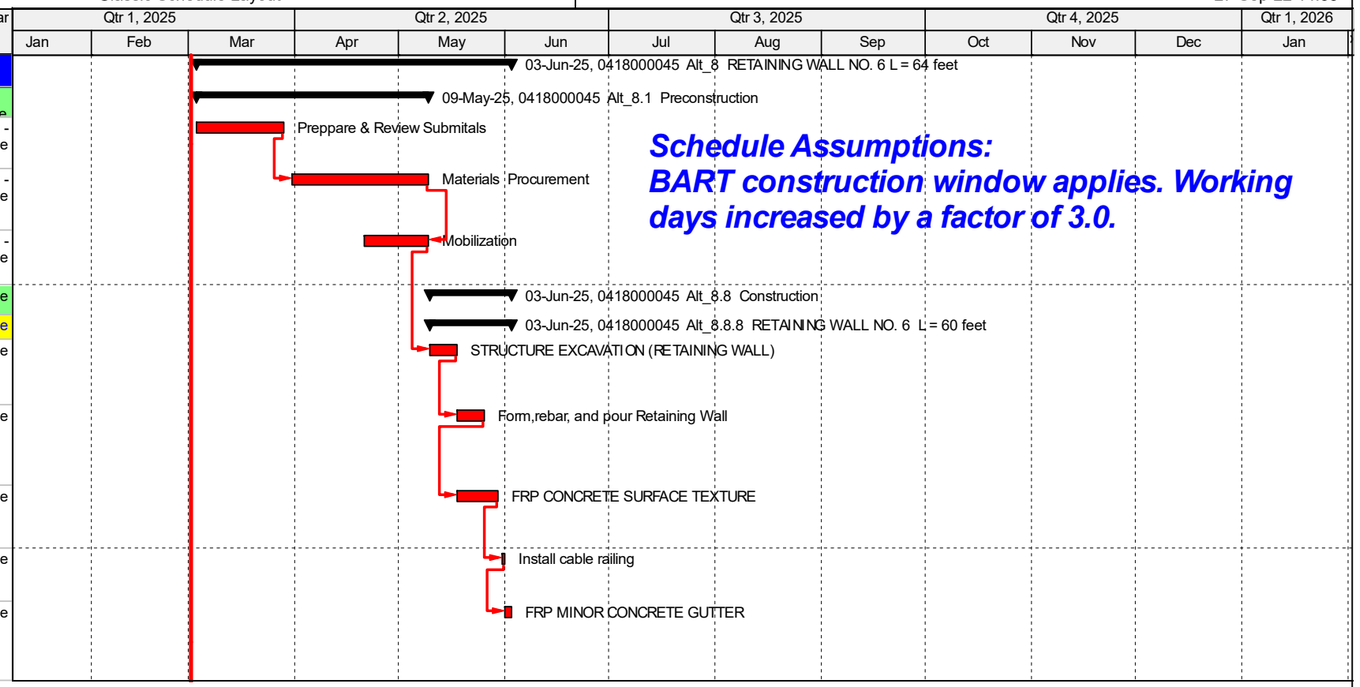
Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_7 RETAINING WALL NO. 5		83	03-Mar-25	27-Jun-25	
0418000045 Alt_7.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submital	20	03-Mar-25	28-Mar-25	Corporate - Standard
A1030	Steel Soldier Pile Procurement (HP 14 X 73)	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1040	Timber Lagging Procurement (6 X 12)	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard
0418000045 Alt_7.7 Construction		34	12-May-25	27-Jun-25	5 day constuction
0418000045 Alt_7.7.7 RETAINING WALL NO. 5		34	12-May-25	27-Jun-25	5 day constuction
B1000	Drill 36" hole, install soldier pile, & pour	16	12-May-25	03-Jun-25	5 day constuction
B1010	STRUCTURE EXCAVATION (SOLDIER PILE WALL)	3	04-Jun-25	06-Jun-25	5 day constuction
B1020	CLEAN AND PAINT STEEL SOLDIER PILING	5	04-Jun-25	10-Jun-25	5 day constuction
B1030	Install TIMBER LAGGING	4	06-Jun-25	11-Jun-25	5 day constuction
B1040	Form,rebar, and pour WALL FACING	3	12-Jun-25	16-Jun-25	5 day constuction
B1050	FRP CONCRETE SURFACE TEXTURE	6	12-Jun-25	19-Jun-25	5 day constuction
B1060	PREPARE AND STAIN CONCRETE	6	20-Jun-25	27-Jun-25	5 day constuction
B1070	Install cable railing	1	20-Jun-25	20-Jun-25	5 day constuction
B1080	FRP MINOR CONCRETE GUTTER	2	23-Jun-25	24-Jun-25	5 day constuction



Actual Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | summary

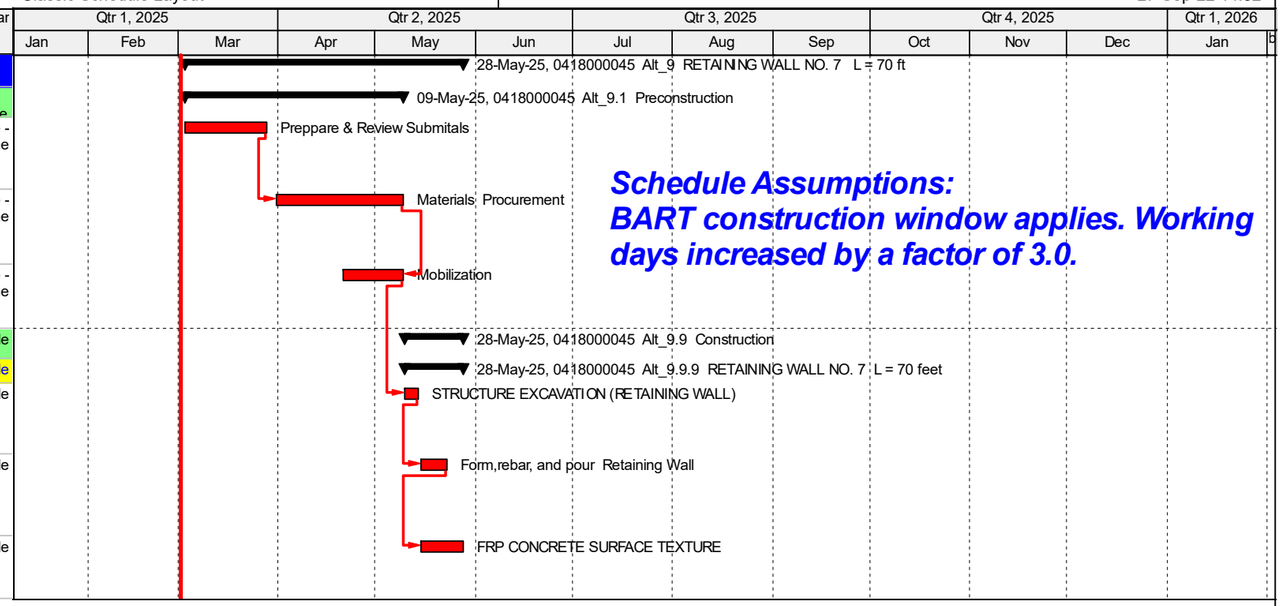
TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_8 RETAINING WALL NO. 6 L = 64 feet		64	03-Mar-25	03-Jun-25	
0418000045 Alt_8.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1040	Materials Procurement	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_8.8 Construction		33	10-May-25	03-Jun-25	BART schedule
0418000045 Alt_8.8.8 RETAINING WALL NO. 6 L = 60 feet		33	10-May-25	03-Jun-25	BART schedule
B1010	STRUCTURE EXCAVATION (RETAINING WALL)	11	10-May-25	18-May-25	BART schedule
B1040	Form,rebar, and pour Retaining Wall	12	18-May-25	26-May-25	BART schedule
B1050	FRP CONCRETE SURFACE TEXTURE	17	18-May-25	30-May-25	BART schedule
B1060	Install cable railing	2	31-May-25	01-Jun-25	BART schedule
B1070	FRP MINOR CONCRETE GUTTER	3	01-Jun-25	03-Jun-25	BART schedule



Schedule Assumptions:
BART construction window applies. Working days increased by a factor of 3.0.

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_9 RETAINING WALL NO. 7 L = 70 ft		60	03-Mar-25	28-May-25	
0418000045 Alt_9.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1040	Materials Procurement	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_9.9 Construction		25	10-May-25	28-May-25	BART schedule
0418000045 Alt_9.9.9 RETAINING WALL NO. 7 L = 70 feet		25	10-May-25	28-May-25	BART schedule
B1010	STRUCTURE EXCAVATION (RETAINING WALL)	7	10-May-25	14-May-25	BART schedule
B1040	Form,rebar, and pour Retaining Wall	11	15-May-25	23-May-25	BART schedule
B1050	FRP CONCRETE SURFACE TEXTURE	18	15-May-25	28-May-25	BART schedule

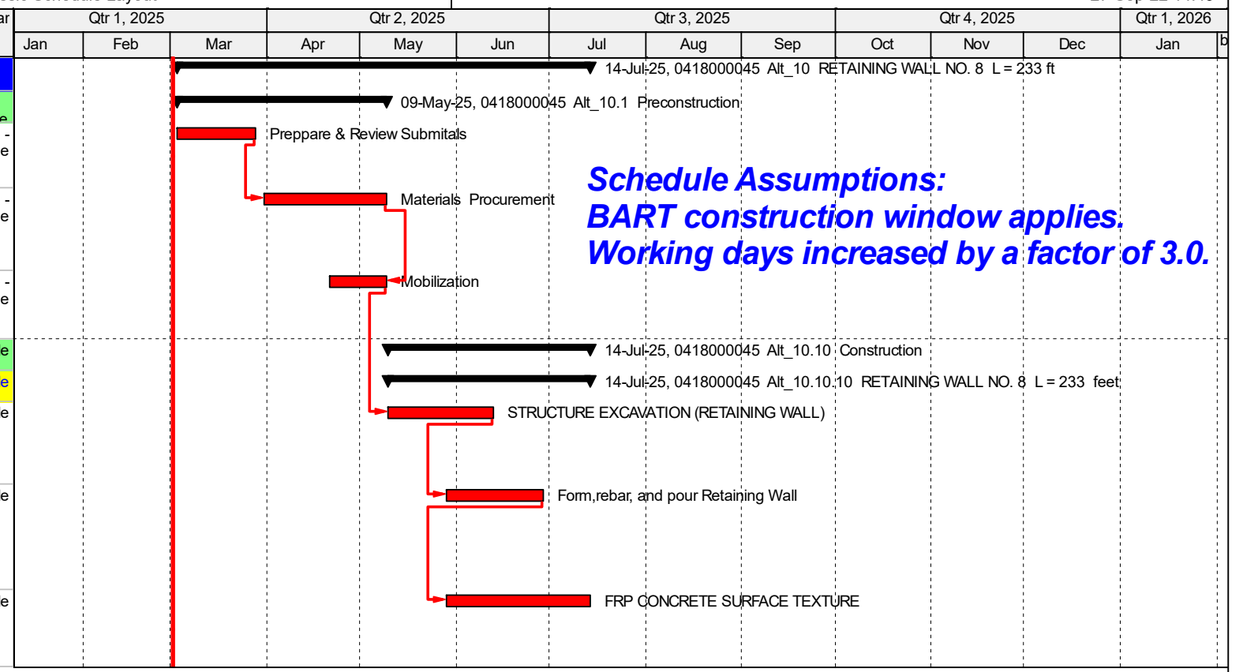


Schedule Assumptions:
BART construction window applies. Working days increased by a factor of 3.0.

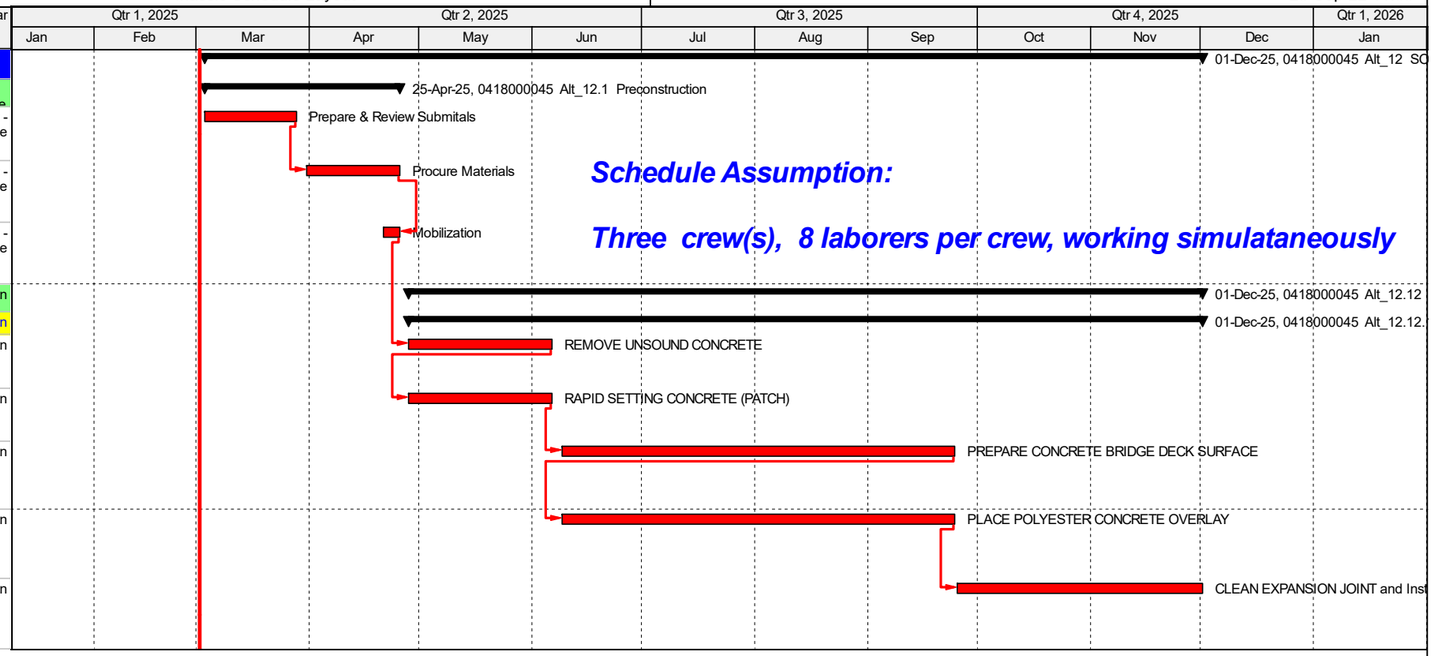
Actual Level of Effort | Actual Work | Remaining Work | Critical Remaining Work | Milestone | summary

TASK filter: All Activities

Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_10 RETAINING WALL NO. 8 L = 233 ft		92	03-Mar-25	14-Jul-25	
0418000045 Alt_10.1 Preconstruction		50	03-Mar-25	09-May-25	Corporate - Standard Full Time
A1000	Preppare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1040	Materials Procurement	30	31-Mar-25	09-May-25	Corporate - Standard Full Time
A1050	Mobilization	15	21-Apr-25	09-May-25	Corporate - Standard Full Time
0418000045 Alt_10.10 Construction		88	10-May-25	14-Jul-25	BART schedule
0418000045 Alt_10.10.10 RETAINING WALL NO. 8 L = 233 feet		88	10-May-25	14-Jul-25	BART schedule
B1010	STRUCTURE EXCAVATION (RETAINING WALL)	46	10-May-25	13-Jun-25	BART schedule
B1040	Form,rebar, and pour Retaining Wall	41	29-May-25	29-Jun-25	BART schedule
B1050	FRP CONCRETE SURFACE TEXTURE	62	29-May-25	14-Jul-25	BART schedule



Activity ID	Activity Name	Original Duration	Start	Finish	Calendar
0418000045 Alt_12 SOUTHERN FREEWAY VIADUCT		188	03-Mar-25	01-Dec-25	
0418000045 Alt_12.1 Preconstruction		40	03-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1010	Prepare & Review Submitals	20	03-Mar-25	28-Mar-25	Corporate - Standard Full Time
A1020	Procure Materials	20	31-Mar-25	25-Apr-25	Corporate - Standard Full Time
A1030	Mobilization	5	21-Apr-25	25-Apr-25	Corporate - Standard Full Time
0418000045 Alt_12.12 Construct RC Box Girder		149	28-Apr-25	01-Dec-25	5 day constuction
0418000045 Alt_12.12.12 SOUTHERN FREEWAY VIADUCT		149	28-Apr-25	01-Dec-25	5 day constuction
B1000	REMOVE UNSOUND CONCRETE	29	28-Apr-25	06-Jun-25	5 day constuction
B1010	RAPID SETTING CONCRETE (PATCH)	29	28-Apr-25	06-Jun-25	5 day constuction
B1020	PREPARE CONCRETE BRIDGE DECK SURFACE	76	09-Jun-25	24-Sep-25	5 day constuction
B1030	PLACE POLYESTER CONCRETE OVERLAY	76	09-Jun-25	24-Sep-25	5 day constuction
B1040	CLEAN EXPANSION JOINT and Install JOINT SEAL (MR 2")	44	25-Sep-25	01-Dec-25	5 day constuction



Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
summary

TASK filter: All Activities

Attachment E

Structure Preliminary Geotechnical Report

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

To: ADAM MENKE
Bridge Design Branch 9
Office of Bridge Design West

Date: June 8, 2022

File: 04-SF-280-R1.06
EA 04-0Q120
EFIS 0418000045
Whipple Ave. POC
Replacement
Exist. Br. No. 34-0096

Attention: Evan Franciliso

From: GEOTECHNICAL SERVICES
Office of Geotechnical Design West
Branches B and C

Subject: **STRUCTURE PRELIMINARY GEOTECHNICAL REPORT FOR WHIPPLE AVENUE POC REPLACEMENT**

Introduction

Pursuant to the request dated November 23, 2021, this Structure Preliminary Geotechnical Report (SPGR) has been prepared for the proposed replacement of Whipple Avenue Pedestrian Overcrossing (POC). The purpose of this report is to summarize the investigations performed and to provide preliminary foundation recommendations for the POC. The recommendations presented in this report are based on the Preliminary Layout dated November 23, 2021, review of As-built plans, and a site visit.

Project Description

This Project proposes to replace the existing Whipple Avenue POC (Br No. 34-0096) as part of the proposed improvements to the travelled ways and shoulders of Interstate 280 (I-280) between PM R0.0 and PM T7.5. The POC is in the City and County of San Francisco on I-280 at PM R1.06 (see Figure 1). Based on 1962 As-built plans, the existing POC was constructed as a four-span, continuously reinforced concrete box girder structure with reinforced concrete slab on top. It includes a spiral pedestrian ramp structure (WPR) on the eastside. The POC and WPR are supported on driven concrete piles at all support locations except one support location (Bent 2) where it is on spread footing. The 1994 As-built plans show that the pile foundation supports of POC and WPR were seismically retrofitted by adding additional CIDH piles. Based on the Preliminary Layout dated November 23, 2021, the proposed POC is a two-span bridge with pedestrian ramps and staircase structures on both sides.

All elevations referenced within this report are based on National Geodetic Vertical

Datum of 1929 (NGVD 29), unless otherwise noted. Both 1962 As-built and 1994 Earthquake Retrofit As-built plans did not include any vertical datum reference. It is assumed that the elevations in these plans are based on NGVD 29, however it is recommended that structure design verify this assumption. The NGVD 29 can be converted to NAVD 88 by adding 2.8 feet.

Geotechnical Investigation

The 1962 As-built LOTB shows that a subsurface investigation, consisting of two mud rotary borings, six 1-inch soil tube borings and two cone penetrometers, was performed in 1961. Additionally, a site visit was performed on December 3, 2021, to review site access.

Geotechnical Conditions

Geology

The Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and part of the Hunters Point 7.5' Quadrangle (Bonilla, 1998) indicate that the site is located on material identified as thick artificial fill, Colma Formation and the Franciscan Complex.

The late Pleistocene (80 – 130 ka) Colma Formation nonconformably overlies the Franciscan Complex at the POC site. Artificial fill is mapped along the I-280 corridor. The fill consists of re-worked surface soils, Colma Formation and Franciscan Complex metasandstone. The Colma consists of non-cemented poorly consolidated (dense) beach, estuarine, eolian, stream and colluvial deposits of gravel, sand silt and clay mixtures that are distributed discontinuously throughout the northern part of the San Francisco Peninsula (Schlocker, 1974). The Franciscan Complex is closely fractured metasandstone, shale and some chert in this area. Locally, interbedded resistant sandstone and pulverized shale of the Franciscan Complex are exposed in existing cut slopes along southbound I-280 (Bonilla, 1971).

Surface Conditions

The I-280 travelled way below the POC is relatively flat and has a total width of approximately 130 feet. The surface water at this location drains to the shoulders and is collected at the drainage inlets located along the shoulders. Southbound I-280 lies at the toe of a cutslope and retaining wall that supports the western end of the existing POC. Northbound I-280 lies on fill with slopes below the roadway between 1.5 and 2:1 (H:V) The downslope on the eastern terminus of the POC is retained by a crib wall.

The site appears free of geologic hazards.

Subsurface Conditions

The subsurface at the site can be separated into two general units. The upper unit includes fill and surface soils that consist of loose to slightly compact sand, silty sand, silt, and gravel. The thickness of this unit varies from 0 to 33 feet. The upper unit extends from the ground surface to a depth of about 13 feet (~Elev. 317 feet) at the western entrance to the existing POC. It is not present closer to the western shoulder of the southbound I-280, however it extends from the ground surface to a depth of about 33 feet (Elev. 220 feet) at the eastern end of the POC (near WPS). The lower unit is the weathered bedrock consisting of sandstone and shale.

Groundwater

During the 1961 subsurface investigation, groundwater was not encountered in any of the borings within the maximum explored depth of 50 feet (~ Elev. 204 feet).

As-built Data

The existing POC was constructed in 1962 and seismically retrofitted in 1994. The POC includes a four-span overcrossing structure and a spiral pedestrian ramp structure (WPR). Both structures were originally founded on Class II concrete driven piles except one location (Bent 2 of the overcrossing structure), where it was supported on spread footing. The foundation data from 1962 As-built plans are summarized in Tables 1 and 2.

Table 1: Summary of 1962 As-built Data for Driven Pile Foundations

Support Location	Foundation Type	Design Load	Bottom of Pile Cap Elev. (feet)	Estimated Pile Tip Elev. (feet)
Abutment 1	Class II Concrete Pile	45 tons	322.9	311.0
Bent 3	Class II Concrete Pile	45 tons	275.7	265.0
Bent 4	Class II Concrete Pile	45 tons	269.1	225.0
Bent 5	Class II Concrete Pile	45 tons	248.0	210.0
WPR Bent 2	Class II Concrete Pile	45 tons	248.0	210.0
WPR Bent 3	Class II Concrete Pile	45 tons	242.0	210.0

Table 2: Summary of 1962 As-built Data for Shallow Foundation

Location	As-built Bottom of Footing Elevation (feet)	As-built Allowable Footing Pressure (tsf)	As-built Design Footing Pressure (tsf)
Bent 2	276.0	4.0	4.0

The 1994 seismic retrofit included the following support modifications:

- Abutment 1: An abutment restrainer supported by a CIDH pile was added,
- Bents 3 and 5: Strut walls supported by CIDH piles were added,
- Bent 4: A foundation retrofit by adding CIDH pile was performed, and
- WPR Bents 2 and 3: Strut retainers supported by CIDH piles were added.

The foundation retrofits performed as part of 1994 seismic retrofit are summarized in Table 3.

Table 3: Summary of 1994 As-built Data for Foundation Retrofit

Support Location	Foundation Type	Design Load	Bottom of Pile Cap Elev. (feet)	Specified Pile Tip Elev. (feet)
Abutment 1	48” CIDH Concrete Pile	175 tons	325.8	298.0
Bent 3	24” CIDH Concrete Pile	100 tons	277.2	247.0
Bent 4	16” CIDH Concrete Pile	70 tons	269.1	215.0
Bent 5	36” CIDH Concrete Pile	100 tons	249.5	209.0
WPR Bent 2	48” CIDH Concrete Pile	175 tons	263.0	215.0
WPR Bent 3	48” CIDH Concrete Pile	175 tons	263.0	215.0

Scour Data

The POC does not span a watercourse, therefore there is no scour potential.

Corrosion Evaluation

Historic corrosion data is not available. For preliminary design purposes the site should be considered non-corrosive based on the presence of predominantly cohesionless soil and no groundwater encountered during 1961 drilling. Corrosion samples will be obtained during the site investigation to evaluate the corrosion potential of the site.

Seismic Information

Ground Motion Hazard

The site, located at latitude 37.713674 degrees and longitude -122.451884 degrees, is susceptible to strong earthquake induced ground motions during the design life of the

Whipple Avenue POC.

Based on available subsurface information and Standard Penetration Test (SPT) correlations for determining shear wave velocity, the time-average shear wave velocity (VS30) for the upper 100 feet of soil at the site is estimated to be 1160 ft/sec (354 m/sec).

The Design Spectrum for the Safety Evaluation Earthquake, as specified in Caltrans Seismic Design Criteria with October 2019 interim revisions, Version 2.0 (SDC v2.0), is the probabilistic response spectrum representing the horizontal ground motion at the site with a 5% probability of exceedance in 50 years (return period = 975 years). The USGS's 2014 NSHM is used as the basis to determine the Design Spectrum in the form of the design Acceleration Response Spectrum (ARS).

Caltrans web-based tool ARS Online v3.0.2 was utilized to determine the design ground motion parameters, including the ARS, for the subject structure site. Based on the ARS Online v3.0.2 tool, the design PGA = 0.75g, and the deaggregated mean earthquake moment magnitude for PGA is M = 7.48 and mean site-to-source distance for 1.0 second period spectral acceleration is R = 5.1 miles.

The Ground Motion Data Sheet, presenting the design ARS data, plot, and other relevant information, is attached.

The soil at the site is "Class S2" per Section 6.1 of the SDC, v2.0.

Other Seismic Hazards

The structure is not located within an Alquist-Priolo Earthquake Fault Zone or 1000 feet from any unzoned fault with an age of Holocene or younger. Therefore, per MTD 20-10, the structure is not considered susceptible to surface fault rupture hazards.

Based on the As-built borings drilled in 1961, groundwater was not encountered within the maximum drilled depth of 50 feet and the borings encountered weathered bedrock at depths ranging from 0 to 34 feet. Based on these groundwater and subsurface soil conditions, the project site is not susceptible to liquefaction or related seismic hazards, including seismic total or differential ground settlement, seismic downdrag and lateral spreading.

Based on the subsurface conditions and the absence of soil liquefaction potential, the existing slopes at the site are not considered subject to instability during the design seismic ground motion event. However, seismic slope stability will be evaluated for future site conditions using site-specific geotechnical data during the project design phase.

The site is located more than 0.5 miles from the nearest coastline and is situated above elevation 40 feet, therefore the risk for tsunami does not exist (per MTD 20-13). Further,

the site is not within the tsunami inundation zone shown in the San Francisco County Tsunami Hazard Area Map (Interactive Map by California Department of Conservation accessed on 5/10/2022).

Geotechnical Recommendations

The proposed POC includes a two-span bridge with pedestrian ramps and staircase structures on both sides. The following is a discussion of the foundation alternatives for the proposed two-span bridge and pedestrian ramps.

- Large Diameter Drilled Shafts (CIDH Concrete Piles): Large diameter drilled shafts, those with diameters greater than 24 inches, are recommended as the preferred alternative for the supports. No groundwater was encountered during 1961 drilling, and therefore no caving or flowing soil conditions anticipated at the site.
- Driven Displacement Piles: Driven displacement piles such as Standard Plan precast prestressed concrete piles or closed end pipe piles are not recommended for the site due to anticipated variability in the subsurface conditions as well as pile drivability.
- Driven Non-Displacement Piles: Driven non-displacement open-ended pipe piles or H-piles are not recommended because the installed pile lengths are expected to be variable and difficult to predict in these subsurface conditions.
- Cast-in-Steel-Shell (CISS) Concrete Piles: CISS piles are not recommended because the installed pile lengths are expected to be variable, difficult to predict and expensive when compared to other foundation options.
- Spread Footings: The foundation conditions are not suitable for spread footings because the thickness of soils overlying the bedrock varies from 0 to 33 feet within the site.

The following is a discussion on the alternatives for earth retaining systems that are part of the construction of proposed pedestrian ramps and staircase structures.

- Standard Plan Walls: Based on the soil conditions at the site, standard plan walls are recommended for the site. However, since the site has a design PGA of 0.75g, the standard structures will need to be evaluated for the design PGA and modified, if necessary. The permanent seismic displacement for a standard wall at the site is calculated to be about 5.0 inches.

- Soldier Pile Walls: Considering the sloping ground conditions and design PGA of 0.75g, soldier pile walls without anchors are recommended for wall heights up to 10 feet and soldier pile walls with anchors are recommended for wall heights greater than 10 feet.

- Soil Nail Walls: Considering the subsurface soil conditions and design PGA of 0.75g, soil nail walls are not recommended for the site.

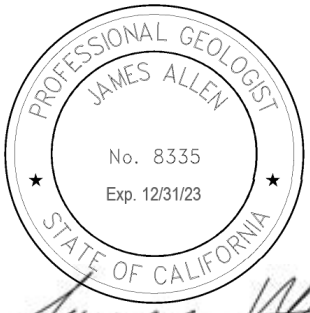
Additional Field Work and Laboratory Testing

The available site information will not provide adequate data to complete the design recommendations for Whipple Avenue POC. Therefore, a field investigation consisting of a minimum of 8 borings up to 100 feet depth and laboratory testing will be performed to characterize the site.

District assistance is needed for obtaining drilling clearances (e.g., environmental permits, right of entry, categorical exemptions, etc.) so that drilling, preliminary design, and the Preliminary Foundation Report can be completed prior to the end of PA&ED. For foundation investigation details, the District may contact the Office of Geotechnical Design West.

Questions relating this report should be directed to Thangalingam Kanagalingam/ James Allen at (213) 505-6902/ (510) 468-5104 or Branch Chiefs Sungro Cho/ Chris Risden at (805) 217-5766/ (510) 622-8757.

THANGALINGAM KANAGALINGAM
Transportation Engineer
Geotechnical Design West – Branch C



JAMES ALLEN
Engineering Geologist
Geotechnical Design West – Branch B

SUNGRO CHO
Branch Chief
Geotechnical Design West – Branch C

CHRIS RISDEN
Branch Chief
Geotechnical Design West – Branch B

Attachments: Figure 1 Project Location Map
Appendix I, Ground Motion Data Sheet

c: Alfred Lee, Project Manager, District 4
Reto Schaerli, Project Liaison Engineer, Division of Engineering Services
Ashok Das, District Materials Engineer, District 4

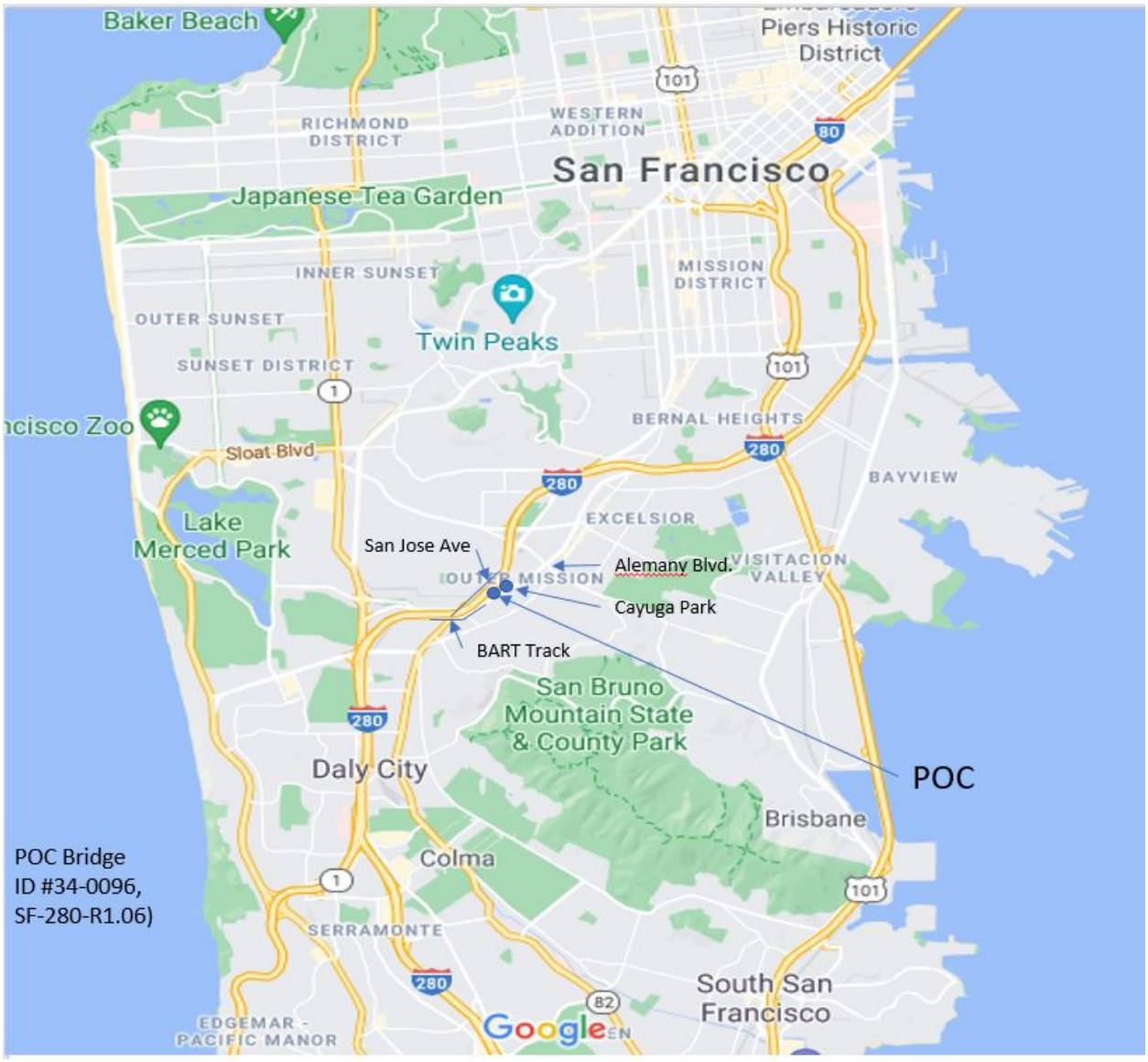


Figure 1: Project Location Map

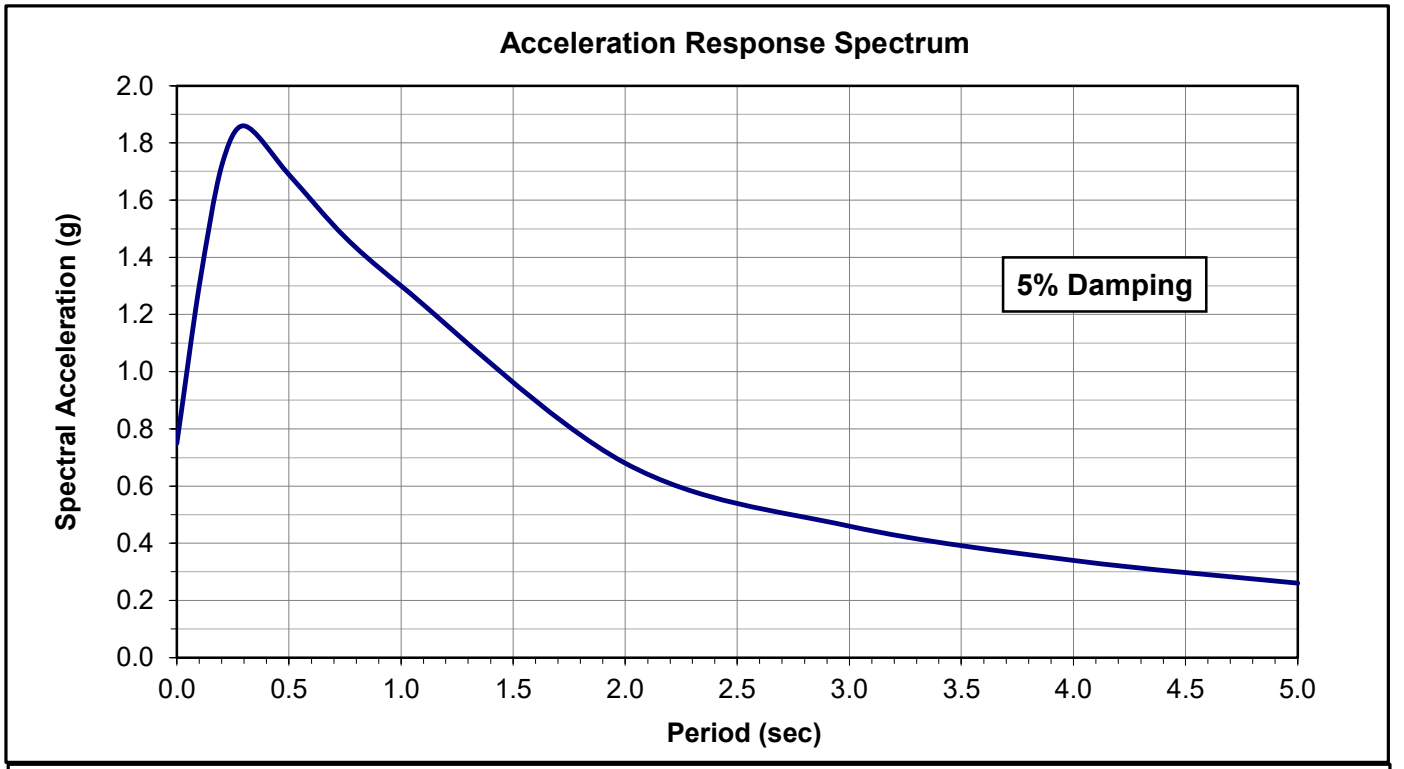
Appendix I: Ground Motion Data Sheet

Bridge Name: Wipple Ave POC **Bridge No.** 34-0096 **Date:** 05/06/22

Site Location: **Latitude (Degrees) =** 37.71367 **Longitude (Degrees)=** -122.451884

ARS Data

Period, T (sec)	Spectral Acceleration, S_a(g)
0.00	0.75
0.10	1.30
0.20	1.72
0.30	1.86
0.50	1.69
0.75	1.47
1.00	1.30
2.00	0.68
3.00	0.46
4.00	0.34
5.00	0.26



The ARS was based on the USGS' 2014 National Seismic Hazard Map for 975-years return period, (Hazard Model/Edition ***"Dynamic Conterminous U.S. 2014 (Update)(V4.2.0)***" hazard data obtained by using ARS Online v3.x.x. Modifications for basin-effecfs and/or near-fault effects were applied, where applicable, per Appendix B of SDC v2.0 with October 2019 Interim Revisions.

V_{S30} = 354 (m/sec) / 1161.12 (ft/sec)

PGA = 0.75 (g)

Mean Earthquake Moment Magnitude (for PGA), M = 7.48

SEE DESIGN GROUND MOTION DATA SHEET

Attachment F

Hydraulic Recommendation

State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

M e m o r a n d u m

To: Peter Aguilera
Senior Transportation Engineer
Office South Special Projects

Attn: Van Hew

Date: July 19, 2022

File No: 04-SF-280
PM R0.0/T 7.5
EA: 0Q120 (0418000045)
Pavement Preservation, replace Whipple Ave. POC, Upgrade Curve Ramps, and other incidental improvement

From: PoTin Leung
Transportation Engineer
Office of Hydraulic Engineering

Subject: District Hydraulic Recommendation for PA&ED

Per your request, Hydraulics has completed a preliminary drainage study for the above project on Route 280, from San Mateo County line to Brannan Street, PM R0.0/ T 7.5.

The scope of work for this project includes
Capital Preventive Maintenance (CAPM), upgrade concrete median barrier, rehabilitate drainage systems, upgrade facilities to Americans with Disabilities Act (ADA) standards, and replace Whipple Avenue Pedestrian Overcrossing No. 34-0096.

Based on your preliminary Project maps (dated April 2021), Structural POC layout (dated June 2022), Project initiation Report (approved 6-28-19), I-280 flooding issues at Southern Fwy Viaduct (email) and the flooding at SB 280 on ramp from Geneva Avenue (email). we have the following preliminary recommendation.

Resurfacing Mainline/ Ramps

- At Mainline- SF 280 PM R0.0-R4.1(PIR attachment B, X-1, X-2) and SM 280 PM R4.38- R6.6 (Project Map), since there is no anticipated change in grade, it will not require hydraulic improvement.

- At Ramps -SM 280 PM R0.0-T7.0 (PIR attachment B, X-2) and Location 1 to 24 (Project Map), since there is no anticipated change in grade, it will not require hydraulic improvement.

Upgrade concrete Barrier

SM 280 PM R1.2 to R2.85 South Bound and SM 280 PM R3.37 to R3.6 North Bound (PIR attachment B-X-3

- Remove and replace existing inlets and concrete inlet depressions. Cost of above work: $217,500

Replace Pedestrian Over-Crossing (POC) at Whipple Ave (PM R1.06)

- Base on the preliminary structural POC layout and focusing meeting in July 2022, we suggested to install inlets and downdrains to collect the storm water from the column drains (locations of column drains to be determined by Structures Design). Remove and replace existing concrete lined ditch and drainage facility depending on the proposed ramp wall location. The downdrains will connect to the proposed concrete lined ditch or proposed drainage inlets. Cost of above work: $264,500

Upgrade ADA Curb ramp

Curb ramp locations: (Curb ramp map received in April 2022)

1. Alemany Blvd and Route 280 On/Off ramps
2. San Jose Ave & Farallones Street
3. San Jose Ave & Mt Vernon Ave
4. Geneva Ave & Route 280 On/Off ramps
5. Ocean Ave & Route 280 On/Off Ramps
6. King Street & Route 280 ON/Off ramps,
7. Brannan Street & Route 280 On/Off Ramps
8. Pennsylvania Ave &18th Street

- At locations 1, 3 to 7, the existing drainage inlets may need to be relocated and reconnected to the existing drainage system depending on the proposed ADA curb ramp location. Cost of above work: $143,000
- At location 2 would not require drainage improvement.

I-280 flooding issues at Southern Fwy Viaduct Bridge #340046 (email dated September 2020)

- This flooding issue was caused by the clogged deck drains on the I-280 viaduct which is beyond the responsibility of District Hydraulics. Khai Leong from the Office of Hydraulic has directed the consultant who reported the flooding issue to Caltrans Structures Maintenance for assistance on November 16, 2020. See attached emails.

Flooding at SB 280 on ramp from Geneva Avenue (email dated February 18, 2021

- Per safety office email dated Feb 2018, there is flooding occur on SB 280 onramp from 380 feet south of the of Geneva Avenue during the heavy rains. Hydraulic office recommends that the design office study the existing grading and repave the area as needed to improve drainage. New Inlets and pipes may need to be installed and connected to the existing drainage facilities. Further hydraulic study will be needed in the PS&E phase. Cost of Above work: $80,000

General Comments

- Any substandard drainage facilities within the mainline and ramps that may need to update to standards. Further hydraulic study will be needed in the PS&E phase. Cost of above work: $215,000
- Any Proposed work at the bridge should be reviewed by HQ structure group

All recommendations are preliminary and subject to change based on the final plans.

The total estimate cost of the proposed drainage work is approximately $920,000

If you have any questions or require addition information, please contact me at (510) 833-0495 or Irene Liu at (510) 846-0237.

Attachment G

Right of Way Data Sheet

To: Design South – Office of Special Projects

Date: December 12, 2022
Dist. 04 Co. SF Rte. 280 PM R0.0-T7.5

Attention: Peter Aguilera
District Branch Chief

Project ID: 0418000045

From: MONA POON
Right of Way Resource Manager

D.S. 7499

CAPM/POC

Subject: Current Estimated Right of Way Costs

We have completed an estimate of the right of way costs for the above referenced project based on maps we received from you on October 13, 2022, and the following assumptions and limiting conditions.

[ ] 1. The mapping did not provide sufficient detail to determine the limits of the right of way required.
[ ] 2. The transportation facilities have not been sufficiently designed so our estimator could determine the damages to any of the remainder parcels affected by the project.
[ ] 3. Additional right of way requirements are anticipated, but are not defined due to the preliminary nature of the early design requirements.
[ ] 4. This estimate does not include $_____right of way costs previously incurred on the project, which may affect the total project right of way costs for programming purposes.
[ ] 5. We have determined there are no right of way functional involvements in the proposed project at this time, as designed.
[X] 6. This Data Sheet is being completed without an estimate for Permit Fees or Environmental Mitigation Costs. An email from Tanvi Gupta stated that there were no Permit Fees or Environmental Mitigation Costs associated with this project.

Right of Way Lead Time will require a minimum of 18 months after we begin receiving final right of way requirements, necessary environmental clearance has been obtained, and freeway agreements have been approved. From the date of receipt of final right of way requirements, we will require a minimum of 15 months prior to the date of certification of the project. Shorter lead times will require either more right of way resources or an increased number of condemnation suits to be filed. Either of these actions may reflect adversely on the District's other programs or our public image generally.

Right of Way Resource Manager

Attachments:

[X] Right of Way Data Sheet – Page One (always required)
[X] Right of Way Data Sheet – All Pages (required when interest in real property is being acquired)
[X] Utility Information Sheet
[X] Railroad Information Sheet

RIGHT OF WAY DATA SHEET

TO: Design South-Special Projects

Date 12/09/2022 D.S. # 7499

Dist. 04 Co. SF Rte 280 PM R0.0/T7.5

EA 0Q1200 (0418000045)

ATTN: Peter Aguilera
District Branch Chief

Project Description: CAPM/POC

SUBJECT: Right of Way Data - Alternate No.

1. Right of Way Cost Estimate:

		Current Value (Future Use)	Escalation Rate	Escalated Value
A.	Acquisition, including Excess Lands, Damages, and Goodwill	$1,403,000.00	3.5 %/yr	$1,500,000.00
	Permits			$0.00
	Environmental Mitigation			$0.00
	Grantor's Appraisal Cost			$10,000.00
B.	Utility Relocation (State Share)	$50,000.00	%	$50,000.00
C.	Railroad (from page 6)			$34,500.00
D.	Relocation Assistance	$0.00	%	$0.00
E.	Clearance Demolition	$0.00	%	$0.00
F.	Title and Escrow Fees	$0.00	%	$0.00
G.	TOTAL ESCALATED VALUE			$1,594,500.00
H.	Construction Contract Work	$0.00		
I.	Railroad Phase 4 Costs	$92,800.00		

2. Anticipated Date of Right of Way Certification 5/2/2024

3. Parcel Data:

Type		Dual/Appr		Utilities	
X				U4-1	
A	3			-2	
B				-3	
C				-4	
D				U5-7	8
E	XXXX			-8	
F	XXXX			-9	

Total 3

RR Involvements	
None	
C&M Agrmt	
R/W Agrmt	x
Design	x
Const.	x
Lic/RE/Clauses	x

Misc R/W Work	
RAP Displ	0
Clear Demo	0
Const. Permits	0
Condemnation	0

Areas: Right of Way _____ No. Excess Parcels _____ Excess _____

Enter PMCS Screens _____ By _____

4. Are there any major items of construction contract work?
Yes ☐ No ☑ (If yes, explain)

5. Provide a general description of the right of way and excess lands required(zoning, use, major improvements critical or sensitive parcels, etc.).
No right of way required. ☐
2 TCE's from BART& 1 TCE from private property. BART & PP valued using NC3 mixed use zoning. 2 PTE&C areas from C&CSF. Possible PTE&C locations for ADA work (no map).

6. Is there an effect on assessed valuation? (If yes explain)
Yes ☐ Not Significant ☐ No ☑

7. Are utility facilities or rights of way affected? Yes ☑ No ☐
If yes, attach Utility Information Sheet Exhibit 01-01-05)

8. Are railroad facilities or rights of way affected? Yes ☑ No ☐
If yes, attach Railroad Information Sheet Exhibit 01-01-06)

9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes ☐ None evident ☑
(If yes, attach memorandum per Procedural Handbook Volume 1, Section 101.011)

10. Are RAP displacements required? Yes ☐ No ☑
(If yes, provide the following information)

No. of personal property relocations _____

No. of single family _____ No. of business/non profit _____

No. of multi-family _____ No. of farms _____

Based on Draft / Final Relocation Impact Statement / Study dated _____, it is anticipated that sufficient replacement housing will / will not be available without Last Resort Housing.

11. Are material borrow and / or disposal sites required? Yes ☐ No ☑
(If yes, explain)

12. Are there potential relinquishments / abandonments? Yes ☐ No ☑
(If yes, explain)

13. Are there any existing and/or potential Airspace sites? Yes ☐ No ☑
(If yes, explain)

14. Are there Environmental Mitigation costs? Yes ☐ No ☑
(If yes, explain)
No costs confirmed by Tanvi Gupta, Environmental, via email dated 12/7/2022.

15. Indicate the anticipated Right of Way schedule and lead time requirements.
Based on the R/W Requirements on Page 1 of this Data Sheet, R/W will require a lead time of 18 months from the date regular appraisals can begin to project certification.

16. Is it anticipated that all Right of Way work be performed by CALTRANS staff?
Yes ☑ No ☐ (If no, discuss)

Assumptions and Limiting Conditions

- This data sheet was completed without a hazardous waste/materials report.
- Possible PTE&C's for ADA work, not mapped for this data sheet
- Information on this data sheet was based on maps provided by Peter Aguilera on 10/13/2022

Evaluation Prepared By: Sean Molloy

Right of Way: Name _____ Date 12/09/2022

Railroad: Name Alden Chalk Date 12/09/2022

Utilities: Name _____ Date 12/12/2022

Recommended for Approval:

_____
Right of Way Capital Cost Coordinator

I have personally reviewed this Right of Way Data Sheet and all supporting information. It is my opinion that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set fourth, and find this Data Sheet complete and current.

_____
Chief, R/W Appraisal Services

12/12/2022
Date

cc: Program Manager
Project Manger

UTILITY INFORMATION SHEET

1. Utility owners located within project limits:
PG&E (gas and electric), AT&T, Cable, Water, Sewer, Verizon, Sprint

2. Facilities potentially impacted by project (if known, include Owners(s) & facility type(s)):
Unknown

3. Anticipated Workload:

X	Utility Verification required	
X	Positive Identification	$50,000
	Utility Relocation	
	Other (Specify)	

4. Additional information concerning anticipated utility involvements (include limiting conditions and a narative addressing likelihood that conflicts will occur);

_____ Involves possible relocation of electric transmission facilities
(If X'd, Data sheet should be forwarded to environmental)

_____ Utility agreements will be required for this project due to CCW on public utility facilities for all public utility relocations and adjustments, including but not limited to, manhole cover adjustments to grade (unless determined & specified in writing by the Utility Engineering Workgroup (UEW) that none are required for this project). A minimum lead-time of 12 months from PA&ED to RWC is needed to secure the utility agreement(s) and specifications as required for the RWC and PS&E milestones. Leadtime requires that UEW provide RW Utilities with a conflict memo and maps no later than the PA&ED milestone.

5. PMCS input information

U4-1		Owner Expense Involvements
U4-2		State Expense Involvements *(Conventional, No Fed Aid)*
U4-3		State Expense Involvements *(Freeway, No Fed Aid)*
U4-4		State Expense Involvements *(Conventional or Freeway, Fed Aid)*
U5-7	8	Verifications - without involvements
U5-8		Verifications - 50% involvements
U5-9		Verifications resulting in involvements

NOTE: The sum of U-4's must equal the sum of ½ of the U5-8's and all of the U5-9's.

ESTIMATED STATE SHARE OF COSTS $ 50,000.00

Prepared by: Latorya Young

Latorya Young
Right of Way Utility Coordinator

12/7/2022
Date

RAILROAD INFORMATION SHEET

1. Describe railroad facilities or right of way affected.
   BART, MUNI, Caltrain & UPRR

2. When branch lines or spurs are affected, would acquisition and/or payment of damages to businesses and/or industries served by the railroad facility be more cost effective than construction of a facility to perpetuate the rail services? (See Procedural Handbook Volume 4a, Chapter 440 for further detail.)
   Yes ☐ No ☐ (If yes, explain)

3. Discuss types of agreements and rights required from the railroads. Are grade crossings requiring service contracts, or grade separations requiring construction and maintenance agreements involved?
   Preliminary Engineering Review (PER) for BART. MCL for UPRR potentially 2 locations. Two locations have curb ramp work that could trigger CPUC review and GO 88-B application.

4. Remarks (Nonoperating railroad right of way involved?)
   At the time of this data sheet, the PER from phase 9 has already been executed.

5. PMCS Input Information

RR Involvements			Estimated Cost	
None				
C&M Agreement			Phase 4*	$ 92,800.00
R/W Agreement		x	Phase 9	$ 34,500.00
	Design	x		
	Const.	x	*not part of page 1 total	
Lic/RE/Clauses		x		

TOTAL ESTIMATED COST $ 127,300.00

Prepared by: Alden Chalk

Alden Chalk
Right of Way Railroad Coordinator

12/09/2022
Date

Right of Way Workplan

Date: 12/12/22

Project ID No:	0418000045
Project Manager:	Al Lee
Programmed RW Support:	$322,000
PA&ED Date or Transmittal:	4/3/28
RWC Date:	5/2/24
Prepared by:	Jim Murphy

EA: 0Q1200

Please note that this estimate only contains the hours needed by RW Agents. You must also obtain an estimate from Land Surveys for a complete support cost total for the Office of Right of Way.

150 Phase K — Start Date: — End Date:

(Data Sheet & PID)		Hours Needed
0849	DDD R/W	
0850	Acq/P&M O.C.	
0851	Appraisals O.C.	
0856	Proj. Coord.	
0859	Capital Mgmt.	
0860	Appraisals	
0867	Railroad	
0869	Utilities	

160 Phase 0 — Start Date: — End Date:

(Util. Verifications, RR study, PR, &/or Updated Datasheet)		Hours Needed
0849	DDD R/W	8
0850	Acq./P&M O.C.	1
0851	Appraisals O.C.	8
0856	Proj. Coord.	8
0859	Capital Mgmt.	10
0860	Appraisals	1
0865	Acquisitions	10
0867	Railroad	
0869	Utilities	40
0876	Rap	
0882	Clerical	

165 Phase 0 — Start Date: — End Date:

(Permits)		Hours Needed
0850	Acq./P&M O.C.	0
0856	Proj. Coord.	0
0865	Acquisitions	0
0882	Clerical	0

185 Phase 1 — Start Date: — End Date:

(Updated datasheet, if needed)		Hours Needed
0850	Acq/P&M O.C.	10
0851	Appraisals O.C.	10
0856	Proj. Coord.	20
0859	Capital Mgmt.	10
0860	Appraisals	20
0867	Railroad	20
0869	Utilities	20

255 Phase 1 — Start Date: — End Date:

(Certification - PSE)		Hours Needed
0856	Proj. Coord.	
0860	Appraisals	
0865	Acquisitions	
0867	Railroad	
0869	Utilities	
0876	RAP	

100.25 Phase 2 — Start Date: 4/3/2028 — End Date: 5/3/2025

(Project Mgmt)		Hours Needed
0849	DDD R/W	8
0850	Acq /P&M O.C.	20
0856	Proj. Coord.	200
0859	Capital Mgmt	20
0854	Data Mgmt O.C.	8
0763	Data Mgmt Staff	24

195 Phase 2 — Start Date: — End Date:

(Prop Mgmt & Excess Land)		Hours Needed
0851	Appraisals O.C.	
0856	Proj. Coord.	
0860	Appraisals	
0872	Prop Mgmt	
0875	Excess Lands	
0874	Airspace	
0882	Clerical	

200 Phase 2 — Start Date: 4/3/2028 — End Date: 5/3/2025

(Utilities)		Hours Needed
0849	DDD R/W	8
0852	Utilites O.C.	10
0856	Proj. Coord.	
0859	Capital Mgmt	
0869	Utilities	100
0882	Clerical	10

225 Phase 2 — Start Date: 4/3/2028 — End Date: 5/2/2024

(Pre-Cert Work)		Hours Needed
0849	DDD R/W	8
0850	Acq /P&M O.C.	80
0851	Appraisals O.C.	80
0856	Proj. Coord.	
0859	Capital Mgmt	100
0860	Appraisals	700
0865	Acquisitions	800
0867	Railroad	250
0868	Acq. Spec. (R.A.)	
0873	Demolition	
0876	RAP	
0882	Clerical	56

245 Phase 2 — Start Date: 5/3/2024 — End Date: 5/3/2025

(Post-Cert Work)		Hours Needed
0849	DDD R/W	8
0850	Acq /P&M O.C.	10
0851	Apprasisals O.C.	
0859	Capital Mgmt	40
0860	Appraisals	
0865	Acquisitions	100
0867	Railroad	20
0868	Acq. Spec. (R.A.)	
0873	Demolition	
0876	RAP	
0882	Clerical	

Total hours required (RW Agents Only): **2856**

Total RW COS (RW Agents Only): **$385,560**

Phase 2 only COS (RW Agents Only): **$359,100**

Please contact 4-Land.Surveys@dot.ca.gov for Land Surveys Support Cost Estimates

Approved By:

Shella Orson (Dec 12, 2022 15:23 PST)

Shella Orson
District Branch Chief
R/W Project Coordination

Attachment H

Preliminary Cost Estimate

PROJECT

PLANNING COST ESTIMATE©

EA: 04-0Q1200 PID: 418000045

EA: 04-0Q1200

PID: 418000045

District-County-Route: 04-SF-280

PM: R0.0 - T7.5

Type of Estimate : Project Report (PR)

Program Code : SHOPP 20.10.201.121 - Pavement Preservation (CAPM)

Project Limits : In the City and County of San Francisco on State Route I-280 from the San Mateo County Line to Brannan Street

Project Description: Rehabilitate pavement, upgrade concrete median barrier, rehabilitate drainage systems, upgrade facilities to Americans with Disabilities Act (ADA) standards, and replace Whipple Avenue Pedestrian Overcrossing No. 34-0096.

Scope : CAPM, POC, Upgrade Curb ramps, Upgrade median barrier and others

Alternative : Build Alternative

SUMMARY OF PROJECT COST ESTIMATE

	Current Year Cost	Escalated Cost
TOTAL ROADWAY COST	$ 27,803,000	$ 30,639,899
TOTAL STRUCTURES COST	$ 47,474,059	$ 52,318,108
SUBTOTAL CONSTRUCTION COST	$ 75,277,059	$ 82,958,007
TOTAL RIGHT OF WAY COST	$ 1,594,500	$ 1,594,500
TOTAL CAPITAL OUTLAY COSTS	$ 76,872,000	$ 84,553,000
PA/ED SUPPORT	$ 4,101,000	$ 4,101,000
PS&E SUPPORT	$ 6,682,000	$ 6,682,000
RIGHT OF WAY SUPPORT	$ 385,560	$ 385,560
CONSTRUCTION SUPPORT	$ 9,877,000	$ 9,877,000
TOTAL SUPPORT COST	$ 21,046,000	$ 21,046,000
TOTAL PROJECT COST	$ 98,000,000	$ 106,000,000 *

Programmed Amount $ 105,313,000

	Month	/	Year
Date of Estimate (Month/Year)	12	/	2022
Estimated Construction Start (Month/Year)	3	/	2025
Number of Working Days =	400		
Estimated Mid-Point of Construction (Month/Year)	1	/	2026
Estimated Construction End (Month/Year)	11	/	2026
Number of Plant Establishment Days	250		

Estimated Project Schedule

PID Approval	8/12/2019 (A)
PA/ED Approval	12/15/2022
PS&E	2/2/2024
RTL	6/1/2024
Begin Construction	3/2/2025

Reviewed by District O.E. or Cost Estimate Certifier

Thanh Luu / Cost Estimate Certifier — 12/15/2022 (Date) — (510) 421-6993 (Phone)

Approved by Project Manager

Al Lee — 12/15/22 (Date) — (510) 286-7211 (Phone)

I. ROADWAY ITEMS SUMMARY

	Section		Cost
1	**Earthwork**	$	240,000
2	**Pavement Structural Section**	$	6,896,700
3	**Drainage**	$	702,500
4	**Specialty Items**	$	1,892,700
5	**Environmental**	$	1,107,500
6	**Traffic Items**	$	4,168,700
7	**Detours**	$	-
8	**Minor Items**	$	900,500
9	**Roadway Mobilization**	$	1,590,900
10	**Supplemental Work**	$	482,800
11	**State Furnished**	$	1,060,400
12	**Time-Related Overhead**	$	5,133,800
13	**Total Roadway Contingency**	$	3,626,500
	TOTAL ROADWAY ITEMS	**$**	**27,803,000**

Estimate Prepared By : Van Hew — 12-14-2022 — 510-362-6092

Van Hew, Project Engineer — Date — Phone

Estimate Reviewed By : 12-14-2022 — 510-286-6201

Atif Abrar, Senior Engineer — Date — Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY		x		=	$	-
19010X	Roadway Excavation (Insert Type) ADL	CY		x		=	$	-
19801X	Imported Borrow	CY/TON		x		=	$	-
194001	Ditch Excavation	CY		x		=	$	-
192037	Structure Excavation (Retaining Wall)	CY		x		=	$	-
193013	Structure Backfill (Retaining Wall)	CY		x		=	$	-
193031	Pervious Backfill Material (Retaining Wall)	CY		x		=	$	-
17010X	Clearing & Grubbing	LS	1	x	240,000.00	=	$	240,000
100100	Develop Water Supply	LS		x		=	$	-
19801X	Imported Borrow	CY/TON		x		=	$	-
21012X	Duff	\CRE/SQFT		x		=	$	-
XXXXXX	Some Item	Unit		x		=	$	-

TOTAL EARTHWORK SECTION ITEMS	**$**	**240,000**

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code		Unit	Quantity		Unit Price ($)			Cost
401050	Jointed Plain Concrete Pavement	CY		x		=	$	-
400050	Continuously Reinforced Concrete Pavement	CY		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON	7,400	x	123.00	=	$	910,200
26020X	Class 2 Aggregate Base	TON/CY		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
414240	Isolation Joint Seal (Asphalt Rubber)	LF		x		=	$	-
414241	Isolation Joint Seal (Silicone)	LF		x		=	$	-
280010	Rapid Strength Concrete Base	CY		x		=	$	-
410096	Drill and Bond (Dowel Bar)	EA		x		=	$	-
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON	19,000	x	117.00	=	$	2,223,000
391006	Asphalt Binder (Geosynthetic Pavement Interlayer)	TON		x		=	$	-
290201	Asphalt Treated Permeable Base	CY		x		=	$	-
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		=	$	-
397005	Tack Coat	TON		x		=	$	-
377501	Slurry Seal	TON		x		=	$	-
374493	Polymer Asphaltic Emulsion (Seal Coat)	TON		x		=	$	-
370001	Sand Cover (Seal)	TON		x		=	$	-
731530	Minor Concrete (Textured Paving)	CY		x		=	$	-
731502	Minor Concrete (Miscellaneous Construction)	CY		x		=	$	-
394077	Place Hot Mix Asphalt Dike (Type F, C)	LF	4,220	x	4.20	=	$	17,724
150771	Remove Asphalt Concrete Dike	LF	4,220	x	4.20	=	$	17,724
360200	Base Bond Breaker	SQYD	8,340	x	3.60	=	$	30,024
420201	Grind Existing Concrete Pavement	SQYD	40,000	x	7.00	=	$	280,000
398300	Remove Base and Surfacing	CY		x		=	$	-
390095	Replace Asphalt Concrete Surfacing	CY		x		=	$	-
411105	Individual Slab Replacement (RSC)	CY	1,800	x	850.00	=	$	1,530,000
280010	Rapid Strength Concrete Base	CY	900	x	500.00	=	$	450,000
150847	Remove Concrete Pavement and base	CY	3,050	x	160.00	=	$	488,000
394090	Place Hot Mix Asphalt (Miscellaneous Area)	SQYD		x		=	$	-
153103	Cold Plane Asphalt Concrete Pavement	SQYD	190,000	x	5.00	=	$	950,000
846046	6" Rumble Strip (Asphalt Concrete Pavement)	STA		x		=	$	-
846049	6" Rumble Strip (Concrete Pavement)	STA		x		=	$	-
846051	12" Rumble Strip (Asphalt Concrete Pavement)	STA		x		=	$	-
846052	12" Rumble Strip (Concrete Pavement)	STA		x		=	$	-
420102	Groove Existing Concrete Pavement	SQYD		x		=	$	-
394095	Roadside Paving (Miscellaneous Areas)	SQYD		x		=	$	-
390136	Minor Hot Mix Asphalt	TON		x		=	$	-
XXXXXX	Some Item	Unit		x		=	$	-

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS	**$**	**6,896,700**

SECTION 3: DRAINAGE

Item code		Unit	Quantity		Unit Price ($)			Cost
71013X	Remove Culvert	EA/LF		x		=	$	-
710240	Modify Inlet	EA		x		=	$	-
710370	Sand Backfill	CY		x		=	$	-
71010X	Abandon Culvert	EA/LF		x		=	$	-
710196	Adjust Inlet	LF		x		=	$	-
710262	Cap Inlet	EA		x		=	$	-
510501	Minor Concrete	CY		x		=	$	-
510502	Minor Concrete (Minor Structure)	CY		x		=	$	-
731627	Minor Concrete (Curb, Sidewalk, and Curb Ramp)	CY		x		=	$	-
6101XX	XX" Alternative Pipe Culvert (Insert Type)	LF		x		=	$	-
6411XX	XX" Plastic Pipe	LF		x		=	$	-
65XXXX	XX" Reinforced Concrete Pipe (Insert Type)	LF		x		=	$	-
6811XX	XX" Plastic Pipe (Edge Drain)	LF		x		=	$	-
6901XX	XX" Corrugated Steel Pipe Downdrain (0.XXX" Thic	LF		x		=	$	-
7006XX	XX" Corrugated Steel Pipe Inlet (0.XXX" Thick)	LF		x		=	$	-
7032XX	XX" Corrugated Steel Pipe Riser (0.XXX" Thick)	LF		x		=	$	-
7050XX	XX" Steel Flared End Section	EA		x		=	$	-
703233	Grated Line Drain	LF		x		=	$	-
72XXXX	Rock Slope Protection (Type and Method)	CY/TON		x		=	$	-
72901X	Rock Slope Protection Fabric (Insert Class)	SQYD		x		=	$	-
721420	Concrete (Ditch Lining)	CY		x		=	$	-
721430	Concrete (Channel Lining)	CY		x		=	$	-
750001	Miscellaneous Iron and Steel	LB		x		=	$	-
XXXXXX	POC (Remove and Replace Existing Concrete Line	LS	1	x	264,500.00	=	$	264,500
XXXXXX	Upgrdae ADA Curb Ramps (DI Relocation)	LS	1	x	143,000.00	=	$	143,000
XXXXXX	Flooding at SB 280 on ramp from Geneva Avenue	LS	1	x	80,000.00	=	$	80,000
XXXXXX	Prel. Drainage Recom. Cost	LS	1	x	215,000.00	=	$	215,000

TOTAL DRAINAGE ITEMS $ 702,500

SECTION 4: SPECIALTY ITEMS

Item code		Unit	Quantity		Unit Price ($)			Cost
520103	Bar Reinforced Steel (Retaining Wall)	LB		x		=	$	-
5100XX	Structural Concrete	CY		x		=	$	-
510060	Structural Concrete, Retaining Wall	CY		x		=	$	-
5201XX	Bar Reinforcing Steel	LB		x		=	$	-
511005	CONCRETE SURFACE TEXTURE (HEAVY	SQFT	500	x	150.00	=	$	75,000
080050	Progress Schedule (Critical Path Method)	LS		x		=	$	-
582001	Sound Wall (Masonry Block)	SQFT		x		=	$	-
832070	Vegetation Control (Minor Concrete)	SQYD	6,935	x	77.50	=	$	537,463
510530	Minor Concrete (Wall)	CY		x		=	$	-
60005X	Remove Sound Wall	LF/LS/SQFT		x		=	$	-
070030	Lead Compliance Plan	LS	1	x	5,000.00	=	$	5,000
141120	Treated Wood Waste	LB	436,540	x	0.20	=	$	87,308
153221	Remove Concrete Barrier (Bollards & Median Barri	LF		x		=	$	-
839752	Remove Guardrail	LF	20,210	x	4.50	=	$	90,945
710167	Remove Flared End Section	EA		x		=	$	-
150608	Remove Link Fence	LF	415	x	15.00	=	$	6,225
800360	Chain Link Gate (Type CL-6)	EA	575	x	28.00	=	$	16,100
832007	Midwest Guardrail System	LF	15,235	x	30.00	=	$	457,050
839301	Single Thrie Beam Barrier	LF		x		=	$	-
839310	Double Thrie Beam Barrier	LF		x		=	$	-
839640	Concrete Barrier (Type 60M)	LF		x		=	$	-
839521	Cable Railing	LF		x		=	$	-
839566	Terminal System (Type CAT)	EA		x		=	$	-
839584	Alternative In-line Terminal System	EA		x		=	$	-
839585	Alternative Flared Terminal System	EA	64	x	2,500.00	=	$	160,000
839631	Crash Cushion (Type U14, U21, & U11)	EA	130	x	500.00	=	$	65,000
839640	Concrete Barrier (Type 60GC Modified)	LF		x		=	$	-
4906XX	XX" Cast-In-Drilled-Hole Concrete Piling	LF		x		=	$	-
X32407	Smart Crash Cushion (SCI-70-GM)	EA	1	x	45,000.00	=	$	45,000
839782	Remove Crash Cushion	EA	9	x	2,200.00	=	$	19,800
8396XX	Crash Cushion (Insert Type)	EA		x		=	$	-
8331XX	Concrete Barrier (Insert Type)	LF		x		=	$	-
475010	Retaining Wall (Masonry Wall)	SQFT		x		=	$	-
511035	Architectural Treatment	SQFT		x		=	$	-
780460	Anti-Graffiti Coating	SQFT	5,000	x	5.00	=	$	25,000
780450	Rock Stain	SQFT		x		=	$	-
4730XX	Reinforced Concrete Crib Wall (Insert Type)	SQFT		x		=	$	-
83954X	Transition Railing (Type WB 31)	EA	52	x	3,900.00	=	$	202,800
780435	Prepare and Paint Concrete	SQFT	500	x	100.00	=	$	50,000
780440	Prepare and Stain Concrete	SQFT	5,000	x	10.00	=	$	50,000
839561	Rail Tensioning Assembly	EA		x		=	$	-
83958X	End Anchor Assembly (Insert Type)	EA						
XXXXXX	Curb Ramps	EA	29	x	9,000.00	=	$	261,000

TOTAL SPECIALTY ITEMS $ 1,892,700

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost	
	Biological Mitigation (on-site)	LS		x		=	$	-	
	Architectural Treatment (Environmental Commitmer	LS	1	x	200,000.00	=	$	200,000	
80010X	Temporary Fence (Insert Type)	LF		x		=	$	-	
130670	Temporary Reinforced Silt Fence	LF		x		=	$	-	
							Subtotal Environmental Mitigation		*$ 200,000*

5B - LANDSCAPE AND IRRIGATION

Item code		Unit	Quantity		Unit Price ($)			Cost	
20XXXX	Highway Planting	LS	1	x	100,000.00	=	$	100,000	
20XXXX	Irrigation System	LS	1	x	150,000.00	=	$	150,000	
20XXXX	Tree Protection Fencing	LF	1,000	x	25.00	=	$	25,000	
204099	Plant Establishment Work	LS	1	x	50,000.00	=	$	50,000	
20XXXX	Follow-up Landscape Project	LS		x		=	$	-	
206405	Remove Irrigation Facility	LS		x		=	$	-	
204096	Maintain Existing Planted Areas	LS		x		=	$	-	
206400	Check and Test Existing Irrigation Facilities	LS		x		=	$	-	
21011X	Imported Topsoil	CY/TON		x		=	$	-	
200114	Rock Blanket	SQFT/SQYD		x		=	$	-	
200122	Weed Germination	SQYD		x		=	$	-	
995100	Water Meter Charges	LS		x		=	$	-	
2087XX	XX" Conduit (Use for Irrigation x-overs)	LF		x		=	$	-	
20890X	Extend X" Conduit (Use for Extension of Irrigation x	LF		x		=	$	-	
							Subtotal Landscape and Irrigation		*$ 325,000*

5C - EROSION CONTROL

Item code		Unit	Quantity		Unit Price ($)			Cost	
211111	Permanent Erosion Control Establishment Work	LS		x		=	$	-	
210010	Move-In/Move-Out (Erosion Control)	EA	22	x	500.00	=	$	11,000	
210350	Fiber Rolls	LF	25,000	x	4.00	=	$	100,000	
210360	Compost Sock	LF		x		=	$	-	
2102XX	Rolled Erosion Control Product (Netting)	SQFT	40,000	x	0.85	=	$	34,000	
21025X	Bonded Fiber Matrix	SQFT/ACRE		x		=	$	-	
210300	Hydromulch	SQFT	100,000	x	0.30	=	$	30,000	
210420	Straw	SQFT		x		=	$	-	
210430	Hydroseed	SQFT	100,000	x	0.30	=	$	30,000	
210610	Compost	CY	500	x	90.00	=	$	45,000	
210630	Incorporate Materials	SQFT							
							Subtotal Erosion Control		*$ 250,000*

5D - NPDES

Item code		Unit	Quantity		Unit Price ($)			Cost	
130300	Prepare SWPPP	LS	1	x	16,300.00	=	$	16,300	
130200	Prepare WPCP	LS		x		=	$	-	
130100	Job Site Management	LS	1	x	50,000.00	=	$	50,000	
130330	Storm Water Annual Report	EA	3	x	2,000.00	=	$	6,000	
130310	Rain Event Action Plan	EA	41	x	500.00	=	$	20,500	
130320	Storm Water Sampling and Analysis Day	EA	27	x	1,100.00	=	$	29,700	
130520	Temporary Hydraulic Mulch	SQYD		x		=	$	-	
130550	Temporary Hydroseed	SQYD		x		=	$	-	
130505	Move-In/Move-Out (Temporary Erosion Control)	EA		x		=	$	-	
130640	Temporary Fiber Roll	LF		x		=	$	-	
130900	Temporary Concrete Washout	LS		x		=	$	-	
130710	Temporary Construction Entrance	EA		x		=	$	-	
130610	Temporary Check Dam	LF		x		=	$	-	
130620	Temporary Drainage Inlet Protection	EA	100	x	250.00	=	$	25,000	
130730	Street Sweeping	LS	1	x	35,000.00	=	$	35,000	
XXXXXX	ADDITIONAL CONSTRUCTION SITE BMP ITEMS	LS	1	x	150,000.00	=	$	150,000	
							Subtotal NPDES		*$ 332,500*

TOTAL ENVIRONMENTAL	**$**	**1,107,500**

Supplemental Work for NPDES

066595	Water Pollution Control Maintenance Sharing*	LS	1	x	20,000.00	=	$	20,000	
066596	Additional Water Pollution Control**	LS	1	x	6,000.00	=	$	6,000	
066597	Storm Water Sampling and Analysis***	LS	1	x	6,000.00	=	$	6,000	
XXXXXX	Some Item	LS		x		=	$	-	
							Subtotal Supplemental Work for NDPS		*$ 32,000*

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

SECTION 6: TRAFFIC ITEMS

6A - Traffic Electrical

Item code		Unit	Quantity		Unit Price ($)			Cost
XXXXX	Upgrade/Install Lighting	LS	1	x	100,000.00	=	$	100,000
870300	Sign Illumination System	LS		x		=	$	-
870400	Signal and Lighting System	LS		x		=	$	-
870510	Ramp Metering System	LS		x		=	$	-
87181X	Interconnection Conduit and Cable	LF/LS		x		=	$	-
5602XX	Furnish Sign Structure (Insert Type)	LB		x		=	$	-
5602XX	Install Sign Structure (Insert Type)	LB		x		=	$	-
4980XX	XX" CIDHC Pile (Sign Foundation)	LF		x		=	$	-
860807	Inductive Loop Detector	EA	200	x	800.00	=	$	160,000
870600	Traffic Monitoring Station System	LS		x		=	$	-
56804X	Remove Sign Structure	EA/LS		x		=	$	-
XXXXX	Relocate Cantilever Sign Structure	EA	1	x	50,000.00	=	$	50,000
568054	Reconstruct Sign Structure	EA		x		=	$	-
568060	Modify Sign Structure	EA		x		=	$	-
870009	Elements During Construction	LS		x		=	$	-
86XXXX	Fiber Optic Conduit System	LS		x		=	$	-
XXXXX	Audible Pedestrian Signal	LS	1	x	1,300,000.00	=	$	1,300,000

Subtotal Traffic Electrical $ *1,610,000*

6B - Traffic Signing and Striping

Item code		Unit	Quantity		Unit Price ($)			Cost
820840	Roadside Sign - One Post	EA		x		=	$	-
820850	Roadside Sign - Two Post	EA		x		=	$	-
5602XX	Furnish Sign Structure (Insert Type)	SQFT		x		=	$	-
820890	Install Sign Panel on Existing Frame	SQFT		x		=	$	-
840530	6" Thermoplastic Traffic Stripe (Enhanced Wei Nigl	LF	280,450	x	1.00	=	$	280,450
840530	6" Thermoplastic Traffic Stripe (Broken 17-7)	LF	285,000	x	1.00	=	$	285,000
846020	Remove Painted Traffic Stripe	LF		x		=	$	-
141102	Remove Yellow Painted Traffic Stripe (Hazardous \	LF		x		=	$	-
846025	Remove Painted Pavement Marking	SQFT		x		=	$	-
820250	Remove Roadside Sign	EA		x		=	$	-
820530	Reset Roadside Sign	EA		x		=	$	-
XXXXXX	Upgrade Sign Panels	LS	1	x	60,000.00	=	$	60,000
XXXXXX	Curve Warning Signs	LS	1	x	40,000.00	=	$	40,000
820610	Relocate Roadside Sign	EA		x		=	$	-
810220	Pavement Marker (Non-reflective)	EA	20,720	x	1.00	=	$	20,720
810230	Pavement Marker (Retroreflective)	EA	13,750	x	4.00	=	$	55,000
8101XX	Delineator (Insert Class)	EA		x		=	$	-
846012	Thermoplastic Crosswalk and Pavement Marking	SQFT	9,940	x	8.00	=	$	79,520
840515	Thermoplastic Pavement Marking	SQFT	7,235	x	2.00	=	$	14,470
120090	Construction Area Signs	LS	1	x	10,000.00	=	$	10,000
84XXXX	Permanent Pavement Delineation	LS		x		=	$	-

Subtotal Traffic Signing and Striping $ *845,160*

6C - Traffic Management Plan

Item code		Unit	Quantity		Unit Price ($)			Cost
12865X	Portable Changeable Message Sign	LS	1	x	$ 100,000	=	$	100,000

Subtotal Traffic Management Plan $ *100,000*

6C - Stage Construction and Traffic Handling

Item code		Unit	Quantity		Unit Price ($)			Cost
120198	Plastic Traffic Drums	EA		x		=	$	-
12016X	Channelizer (Insert Type)	EA		x		=	$	-
120116	Type II Barricade	EA		x		=	$	-
120120	Type III Barricade	EA		x		=	$	-
129100	Temporary Crash Cushion Module	EA	6	x	3,500.00	=	$	21,000
120100	Traffic Control System	LS	1	x	1,300,000.00	=	$	1,300,000
129110	Temporary Crash Cushion	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF	10,100	x	25.00	=	$	252,500
120149	Temporary Pavement Marking (Paint)	SQFT		x		=	$	-
120152	Temporary Pavement Marking (Tape)	SQFT		x		=	$	-
XXXXXX	Delineators, Markers, etc	LS	1	x	40,000.00	=	$	40,000

Subtotal Stage Construction and Traffic Handling $ *1,613,500*

TOTAL TRAFFIC ITEMS **$ 4,168,700**

SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code		Unit	Quantity		Unit Price ($)			Cost
190101	Roadway Excavation	CY		x		=	$	-
19801X	Imported Borrow	CY/TON		x		=	$	-
390132	Hot Mix Asphalt (Type A)	TON		x		=	$	-
26020X	Class 2 Aggregate Base	CY/TON		x		=	$	-
250401	Class 4 Aggregate Subbase	CY		x		=	$	-
130620	Temporary Drainage Inlet Protection	EA		x		=	$	-
129000	Temporary Railing (Type K)	LF		x		=	$	-
128601	Temporary Signal System	LS		x		=	$	-
120149	Temporary Pavement Marking (Paint)	SQFT		x		=	$	-
80010X	Temporary Fence (Insert Type)	LF		x		=	$	-
XXXXXX	Some Item	LS		x		=	$	-

TOTAL DETOURS **$ -**

SUBTOTAL SECTIONS 1 through 7 $ 15,008,100

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items						
	ADA Items	1.50%	$	225,122		
8B - Bike Path Items						
	Bike Path Items	1.50%	$	225,122		
8C - Other Minor Items						
	Other Minor Items	3.0%	$	450,243		
	Total of Section 1-7	$ 15,008,100 x	6.0%	= $	900,486	

TOTAL MINOR ITEMS **$ 900,500**

SECTIONS 9: ROADWAY MOBILIZATION *

Item code							
999990	Total Section 1-8	$ 15,908,600	x	10%	= $	1,590,860	

TOTAL ROADWAY MOBILIZATION **$ 1,590,900**

SECTION 10: SUPPLEMENTAL WORK

Item code		Unit	Quantity		Unit Price ($)			Cost	
066670	Payment Adjustments For Price Index Fluctuations	LS	1	x	101,700.00	=	$	101,700	
066094	Value Analysis	LS	1	x	10,000.00	=	$	10,000	
066070	Maintain Traffic	LS	1	x	75,000.00	=	$	75,000	
066919	Dispute Resolution Board	LS	1	x	15,000.00	=	$	15,000	
066921	Dispute Resolution Advisor	LS		x		=	$	-	
066015	Federal Trainee Program	EA	25	x	800.00	=	$	20,000	
066610	Partnering	LS	1	x	70,000.00	=	$	70,000	CCD guide
066204	Remove Rock and Debris	LS		x		=	$	-	
066222	Locate Existing Crossover	LS		x		=	$	-	
XXXXXX	Some Item	Unit		x		=	$	-	
	*Cost of **NPDES** Supplemental Work specified in Section 5D*					=	$	32,000	
	Total Section 1-8	$ 15,908,600			1%	=	$	159,086	

TOTAL SUPPLEMENTAL WORK **$ 482,800**

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price ($)		Cost
066105	Resident Engineers Office	LS	1	x	490,500.00	=	$490,500
066063	Traffic Management Plan - Public Information	LS	1	x	15,000.00	=	$15,000
066901	Water Expenses	LS		x		=	$0
8609XX	Traffic Monitoring Station (X)	LS		x		=	$0
066841	Traffic Controller Assembly	LS		x		=	$0
066840	Traffic Signal Controller Assembly	LS		x		=	$0
066062	COZEEP Contract	LS	1	x	300,000.00	=	$300,000
066838	Reflective Numbers and Edge Sealer	LS		x		=	$0
066065	Tow Truck Service Patrol	LS		x		=	$0
066916	Annual Construction General Permit Fee	LS	1	x	3,000.00	=	$3,000
XXXXXX	Railroad Work	LS	1	x	92,800.00	=	$92,800
	Total Section 1-8	$	15,908,600		1%	= $	159,086

TOTAL STATE FURNISHED **$1,060,400**

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization $51,337,002 (used to calculate total TRO)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = **10%**

Item code		Unit	Quantity		Unit Price ($)		Cost
090100	Time-Related Overhead	WD	400	X	$12,835	=	$5,133,800

TOTAL TIME-RELATED OVERHEAD **$5,133,800**

SECTION 13: ROADWAY CONTINGENCY*

Risk Amount from Risk Register	(for Known Risks)				0%		
Additional or Residual Contingency	(for Unknown/Undefined Risks)				15%		$3,626,475
Total Section 1-12	$	24,176,500	x	**15%**		=	$3,626,475

TOTAL CONTINGENCY* **$3,626,500**

II. STRUCTURE ITEMS

	Bridge 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Bridge Name	WHIPPLE AVE POC (RW1-8, Stairs)	SOUTHERN FREEWAY VIADUCT	xxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	34-0046	57-XXX
Structure Type	POC	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0 LF	0 LF	0 LF
Total Bridge Length (Feet)	0 LF	0 LF	0 LF
Total Area (Square Feet)	0 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$0	$0	$0
COST OF EACH	**$13,716,792**	**$21,711,610**	**$0**

	Building 1	Bridge 2	Bridge 3
DATE OF ESTIMATE	00/00/00	00/00/00	00/00/00
Building Name	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Bridge Number	57-XXX	57-XXX	57-XXX
Structure Type	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Width (Feet) [out to out]	0 LF	0 LF	0 LF
Total Building Length (Feet)	0 LF	0 LF	0 LF
Total Area (Square Feet)	0 SQFT	0 SQFT	0 SQFT
Structure Depth (Feet)	0 LF	0 LF	0 LF
Footing Type (pile or spread)	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx	xxxxxxxxxxxxxxxxxx
Cost Per Square Foot	$300	$0	$0
COST OF EACH	**$0**	**$0**	**$0**

TOTAL COST OF BRIDGES		**$35,428,402**
TOTAL COST OF BUILDINGS		**$0**
Time-Related Overhead	10%	**$3,542,840**
STRUCTURES MOBILIZATION	10%	**$3,542,840**
STRUCTURES CONTINGENCY*	20%	**$8,502,816**
TOTAL COST OF STRUCTURES		**$47,474,059**

Estimate Prepared By: _____ _____

XXXXXXXXXXXXXXXX ------ Division of Structures — Date

EA: 04-0Q1200 PID: 418000045

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way Data Sheet.

				Current Value Future Use		*Escalated Value*
A)	A1)	Acquisition, including Excess Land, Fees, Damages, Goodwill	$	1,500,000	$	1,500,000
	A2)	Acquisition of Offsite Mitigation	$	0	$	0
	A3)	Railroad Acquisition	$	0	$	0
		Grantor's Appraisal Cost		10,000		10,000
B)	B1)	Utility Relocation (State Share)	$	50,000	$	50,000
	B2)	Potholing (Design Phase)	$	0	$	0
C)		Utility - Advance Engineering Estimate (Encumber with State Only Funds)	$		$	
		Railroad		34,500		34,500
D)		RAP and/or Last Resort Housing	$	0	$	0
E)		Clearance & Demolition	$	0	$	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	$	0	$	0
G)		Title and Escrow	$	0	$	0
H)		Environmental Review	$	0	$	0
I)		Condemnation Settlements 0%	$	0	$	0
J)		Design Appreciation Factor 0%	$	0	$	0
K)		Utility Relocation (Construction Cost)	$	0	$	0

L)	**TOTAL RIGHT OF WAY ESTIMATE**	**$1,594,500**
M)	**TOTAL R/W ESTIMATE: Escalated**	**$1,594,500**
N)	**RIGHT OF WAY SUPPORT**	**$385,560**

Support Cost Estimate Prepared By _____ Project Coordinator[1] _____ Phone

Utility Estimate Prepared By _____ Utility Coordinator[2] _____ Phone

R/W Acquisition Estimate Prepared By _____ Right of Way Estimator[3] _____ Phone

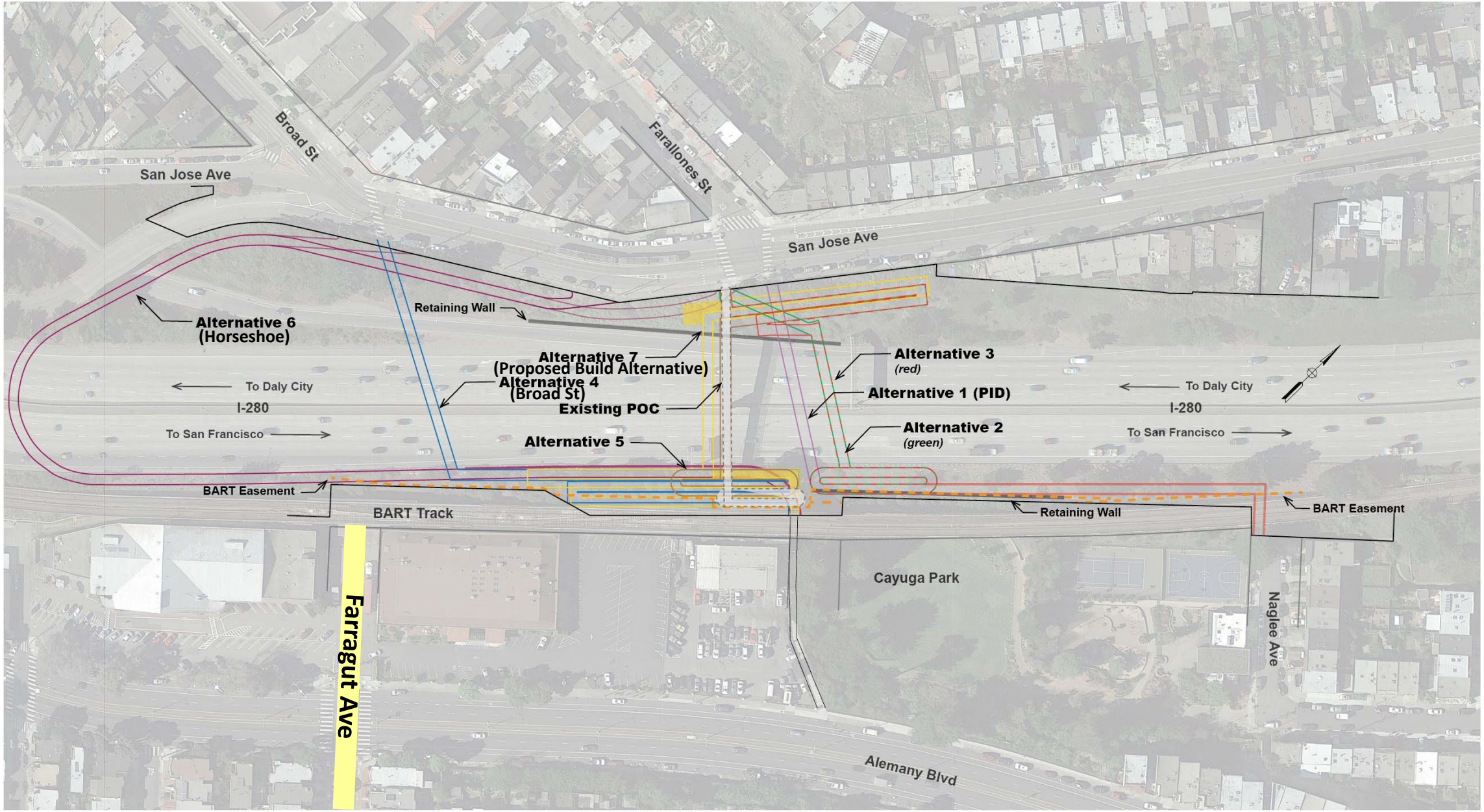
Note: Items G & H applied to items A + B

[1] When estimate has Support Costs only [2] When estimate has Utility Relocation [3] When R/W Acquisition is required

Attachment I

Rejected Alternative Layouts

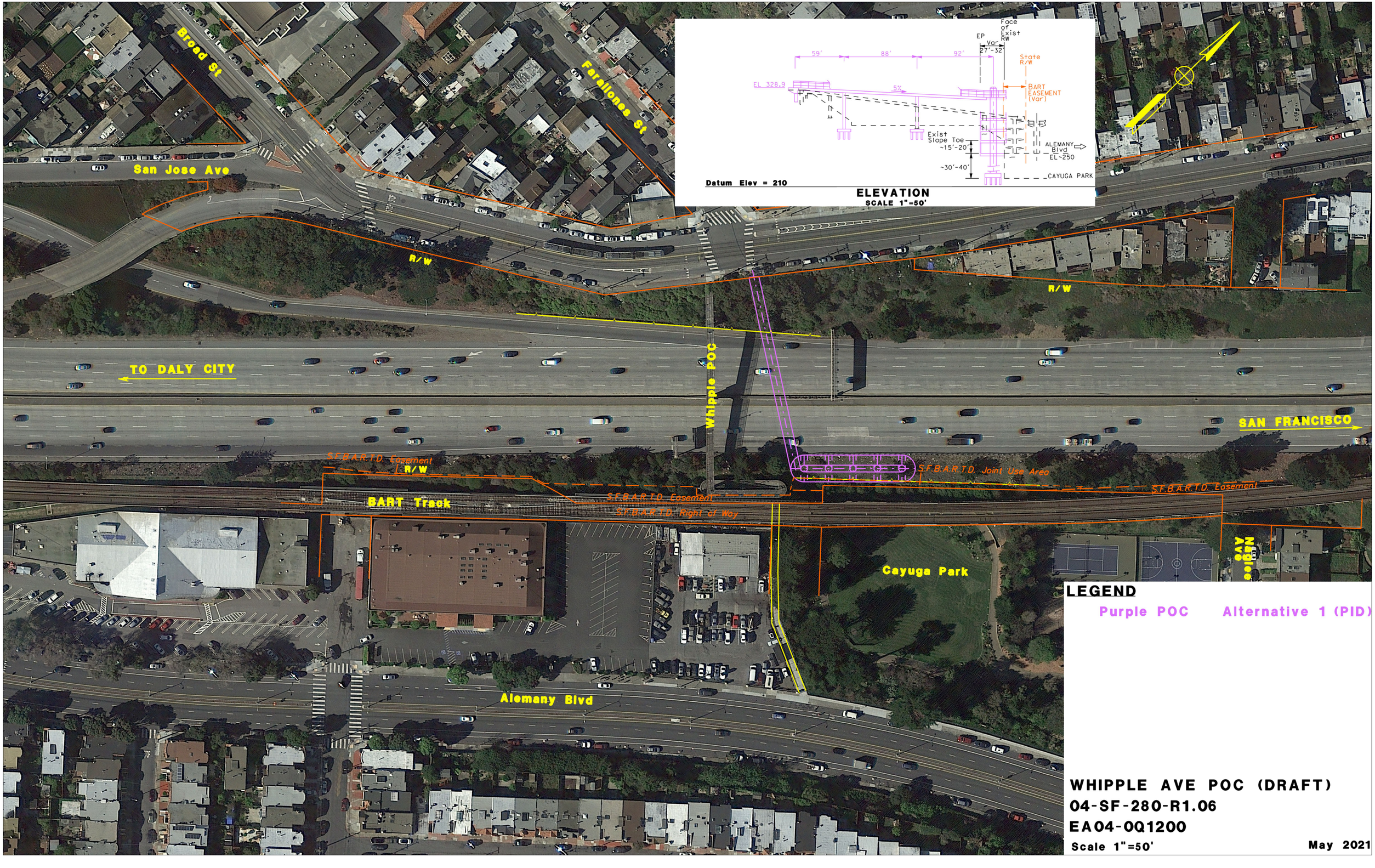
Alternative Alignments

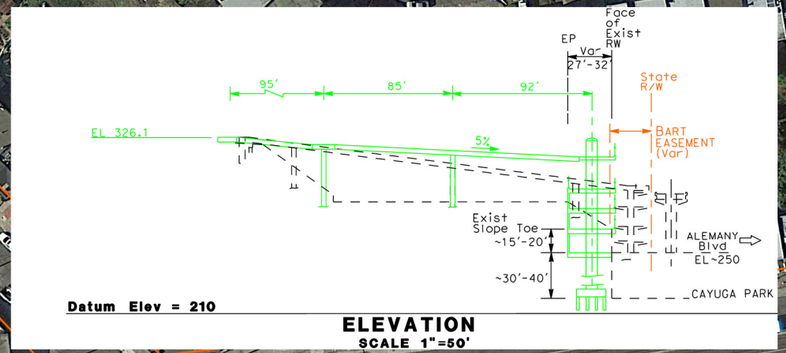


Alternative Alignments 1 inch = 100 feet

0 0.5 1 1.5 2

Relative scale in inches


Broad St
San Jose Ave
Farallones St
R/W
R/W
TO DALY CITY
Whipple POC
SAN FRANCISCO
S.F.B.A.R.T.D. Easement
R/W
BART Track
S.F.B.A.R.T.D. Easement
S.F.B.A.R.T.D. Right of Way
S.F.B.A.R.T.D. Joint Use Area
S.F.B.A.R.T.D. Easement
Cayuga Park
Alemany Blvd
Face of Exist R/W
EP Var
27'-32'
59'
88'
92'
State R/W
EL 328.9
5%
BART EASEMENT (Var)
Exist Slope Toe
~15'-20'
~30'-40'
ALEMANY Blvd
EL~250
CAYUGA PARK
Datum Elev = 210
ELEVATION
SCALE 1"=50'
LEGEND
Purple POC
Alternative 1 (PID)
WHIPPLE AVE POC (DRAFT)
04-SF-280-R1.06
EA04-0Q1200
Scale 1"=50'
May 2021



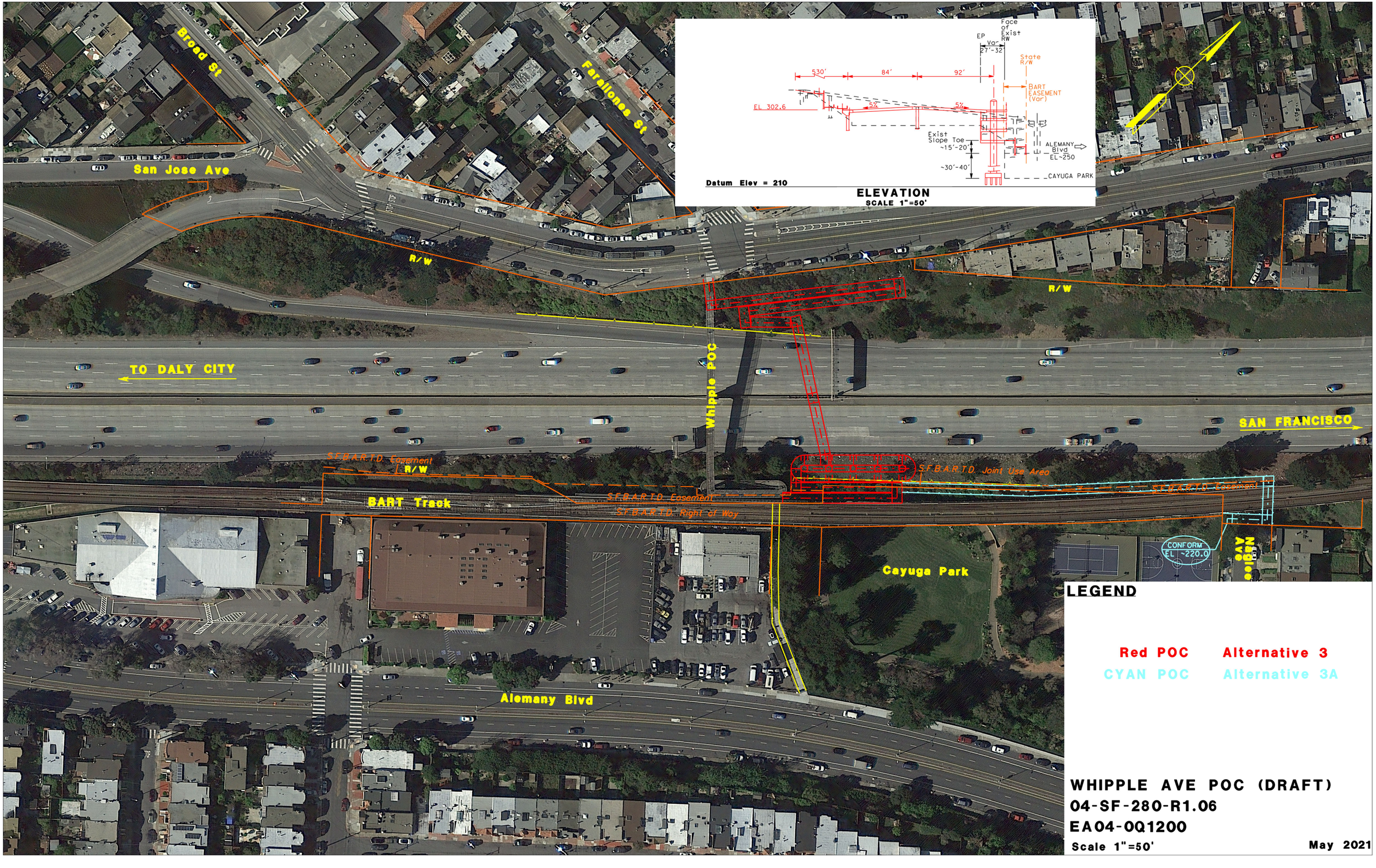
ELEVATION
SCALE 1"=50'

Broad St
San Jose Ave
Farallones St
R/W
R/W
TO DALY CITY
Whipple POC
SAN FRANCISCO
S.F.B.A.R.T.D. Easement
R/W
BART Track
S.F.B.A.R.T.D. Easement
S.F.B.A.R.T.D. Right of Way
S.F.B.A.R.T.D. Joint Use Area
S.F.B.A.R.T.D. Easement
Cayuga Park
Ridge Ave
Alemany Blvd

LEGEND

Green POC Alternative 2

WHIPPLE AVE POC (DRAFT)
04-SF-280-R1.06
EA04-0Q1200
Scale 1"=50' May 2021



LEGEND

Red POC — Alternative 3

CYAN POC — Alternative 3A

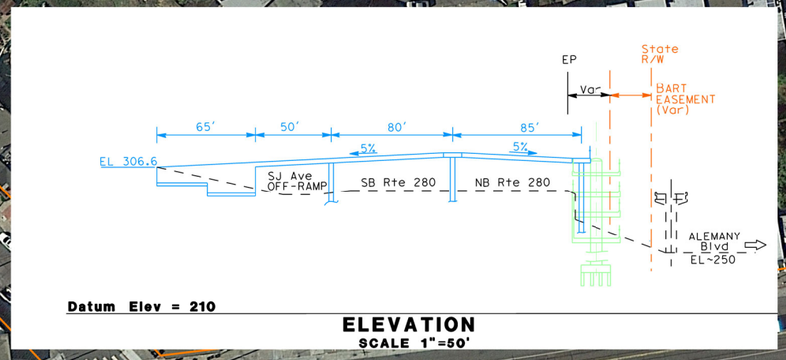
WHIPPLE AVE POC (DRAFT)

04-SF-280-R1.06

EA04-0Q1200

Scale 1"=50'

May 2021



Datum Elev = 210

ELEVATION
SCALE 1"=50'

Broad St

San Jose Ave

Farallones St

R/W

R/W

TO DALY CITY

Whipple POC

SAN FRANCISCO

R/W

BART Track

Cayuga Park

Alemany Blvd

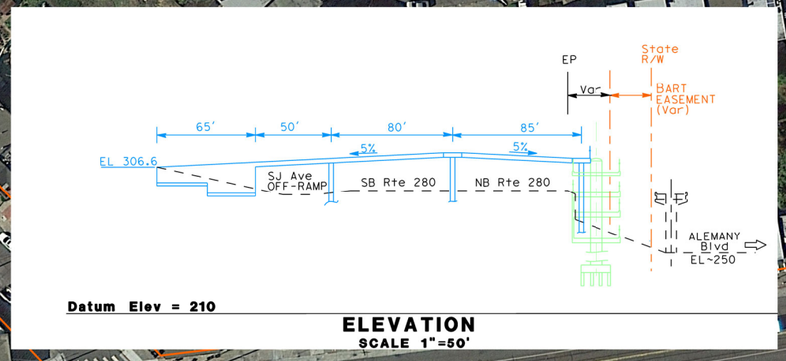
Ridge Ave

LEGEND

BLUE POC Alternative 4

WHIPPLE AVE POC (DRAFT)
04-SF-280-R1.06
EA04-0Q1200

Scale 1"=50' July 2021



Datum Elev = 210

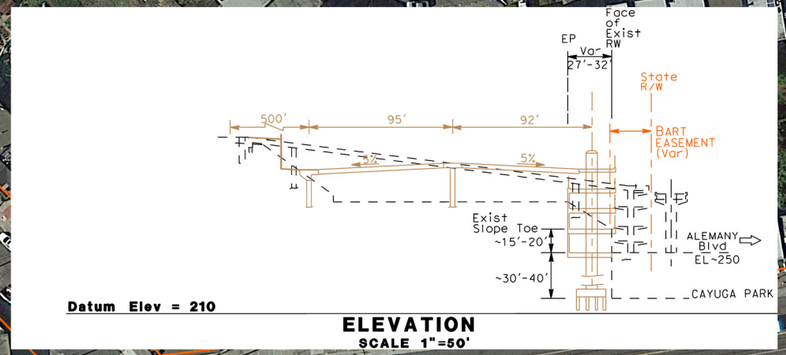
ELEVATION
SCALE 1"=50'

Broad St
San Jose Ave
Farallones St
R/W
R/W
TO DALY CITY
Whipple POC
SAN FRANCISCO
S.F.B.A.R.T.D. Easement
R/W
S.F.B.A.R.T.D. Joint Use Area
S.F.B.A.R.T.D. Easement
BART Track
S.F.B.A.R.T.D. Easement
S.F.B.A.R.T.D. Right of Way
Cayuga Park
Niagara Ave
Alemany Blvd

LEGEND

MINT POC Alternative 4A

WHIPPLE AVE POC (DRAFT)
04-SF-280-R1.06
EA04-0Q1200
Scale 1"=50' May 2021



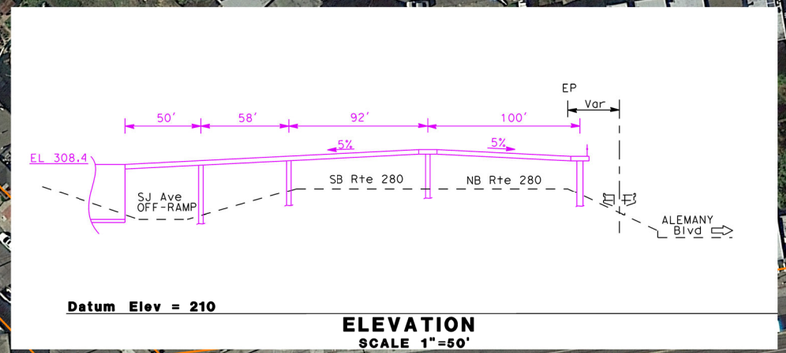
ELEVATION
SCALE 1"=50'

Broad St
San Jose Ave
Farallones St
R/W
R/W
TO DALY CITY
Whipple POC
SAN FRANCISCO
S.F.B.A.R.T.D. Easement R/W
BART Track
S.F.B.A.R.T.D. Easement
S.F.B.A.R.T.D. Right of Way
S.F.B.A.R.T.D. Joint Use Area
S.F.B.A.R.T.D. Easement
Cayuga Park
Ave
Alemany Blvd

LEGEND

BROWN POC Alternative 5

WHIPPLE AVE POC (DRAFT)
04-SF-280-R1.06
EA04-0Q1200
Scale 1"=50' May 2021



ELEVATION
SCALE 1"=50'

Broad St
San Jose Ave
Farallones St
R/W
R=198'
R=40'
R=40'
R=300'
R=40'
R/W
R=40'
TO DALY CITY
Whipple POC
SAN FRANCISCO
R=50'
R/W
BART Track
Cayuga Park
Ridge Ave
Alemany Blvd

LEGEND

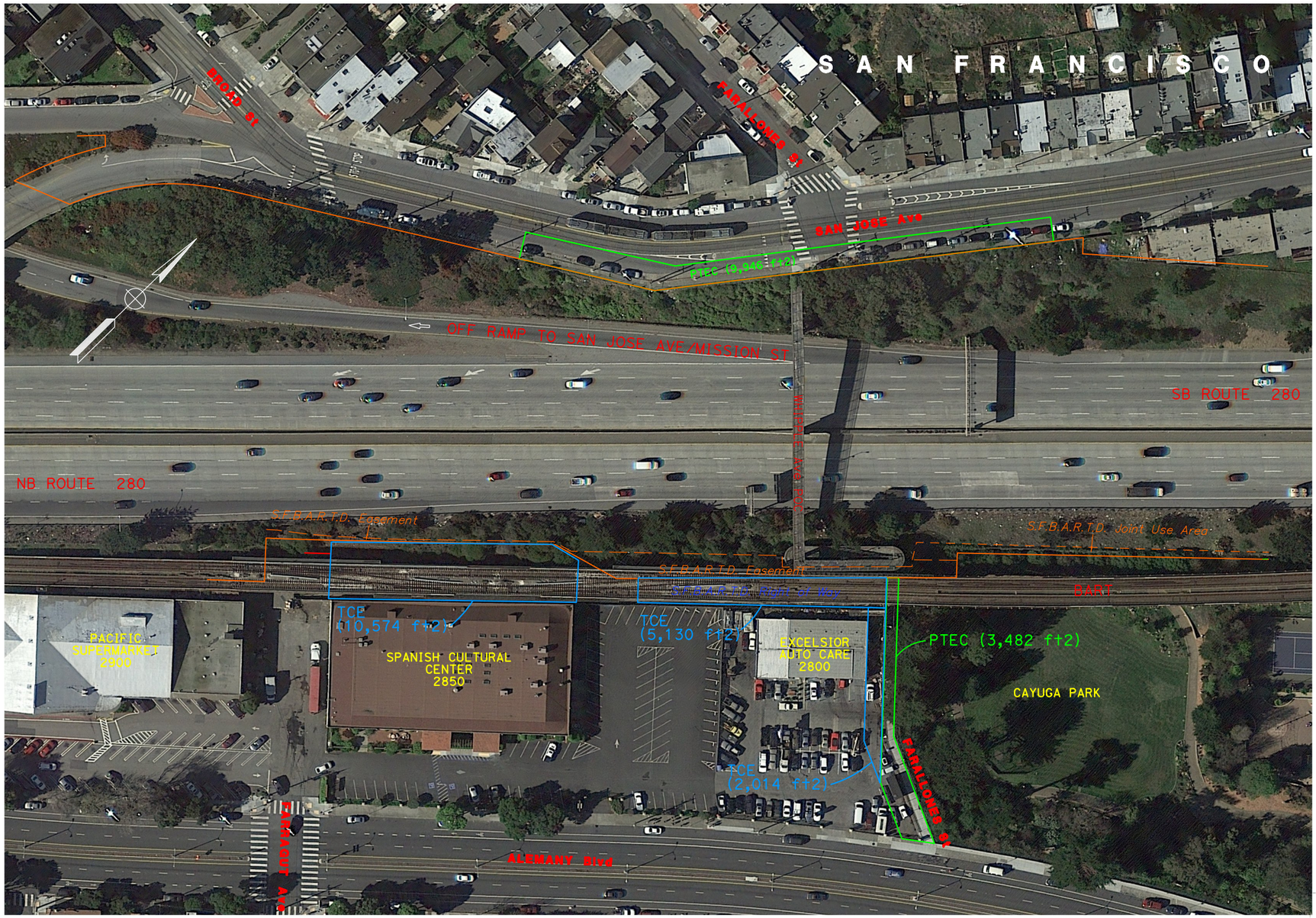
MAGENTA POC Alternative 6

WHIPPLE AVE POC (DRAFT)
04-SF-280-R1.06
EA04-0Q1200
Scale 1"=50' June 2021

Attachment J

Right of Way Acquisition Layout

PAED PLAN FOR RW DATA SHEET



LEGEND:

TCE - TEMPORARY CONSTRUCTION EASEMENT

PTEC - PERMIT TO ENTER AND CONSTRUCT

EA 0Q1200 SF-280-R1.06 PM

WHIPPLE AVENUE POC REPLACEMENT

09/29/22

Attachment K

Environmental Document:
Categorical Exemption/Categorical Exclusion

CEQA EXEMPTION / NEPA CATEGORICAL EXCLUSION DETERMINATION FORM (rev. 06/2022)

Project Information

Project Name (if applicable): CAPM SF 280 Project

DIST-CO-RTE: 04-SF-280 **PM/PM:** 0.0/7.5

EA: 0Q120 **Federal-Aid Project Number:** 0418000045

Project Description

The project is located in the City and County of San Francisco on U.S. Route 280 from postmile 0.0 (San Mateo County line) to postmile 7.5 (Brannan Street). The project proposes to rehabilitate pavement, upgrade concrete barriers, rehabilitate drainage systems, upgrade facilities to ADA standards, and replace the Whipple Avenue Pedestrian Overcrossing.

The purpose of this project is to preserve, repair, and extend the life of the existing pavement and improve ride quality. The project's need is based on the Pavement Condition Survey which indicates that there is minor to moderate pavement distress. If the existing condition is left uncorrected, the roadway will deteriorate and require major rehabilitation.

Caltrans CEQA Determination (Check one)

☐ **Not Applicable** – Caltrans is not the CEQA Lead Agency

☐ **Not Applicable** – Caltrans has prepared an IS or EIR under CEQA

Based on an examination of this proposal and supporting information, the project is:

☐ **Exempt by Statute.** (PRC 21080[b]; 14 CCR 15260 et seq.)

☒ **Categorically Exempt. Class** 2b. (PRC 21084; 14 CCR 15300 et seq.)

☒ No exceptions apply that would bar the use of a categorical exemption (PRC 21084 and 14 CCR 15300.2). See the SER Chapter 34 for exceptions.

☐ **Covered by the Common Sense Exemption**. This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (14 CCR 15061[b][3].)

Senior Environmental Planner or Environmental Branch Chief

Zachary Gifford		12/07/2022
Print Name	Signature	Date

Project Manager

Al B. Lee	Al B. Lee	12-7-22
Print Name	Signature	Date

Caltrans NEPA Determination (Check one)

☐ **Not Applicable**

Caltrans has determined that this project has no significant impacts on the environment as defined by NEPA, and that there are no unusual circumstances as described in 23 CFR 771.117(b). See SER Chapter 30 for unusual circumstances. As such, the project is categorically excluded from the requirements to prepare an EA or EIS under NEPA and is included under the following:

☒ **23 USC 326:** Caltrans has been assigned, and hereby certifies that it has carried out the responsibility to make this determination pursuant to 23 USC 326 and the Memorandum of Understanding dated April 18, 2022, executed between FHWA and Caltrans. Caltrans has determined that the project is a Categorical Exclusion under:

- ☒ **23 CFR 771.117(c): activity (c)(26)**
- ☐ **23 CFR 771.117(d): activity (d)(Enter activity number)**
- ☐ **Activity Enter activity number listed in Appendix A of the MOU between FHWA and Caltrans**

☐ **23 USC 327:** Based on an examination of this proposal and supporting information, Caltrans has determined that the project is a Categorical Exclusion under 23 USC 327. The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated May 27, 2022, and executed by FHWA and Caltrans.

Senior Environmental Planner or Environmental Branch Chief

Zachary Gifford		12/07/2022
Print Name	Signature	Date

Project Manager/ DLA Engineer

Al B. Lee	Al B. Lee	12-7-22
Print Name	Signature	Date

Date of Categorical Exclusion Checklist completion (if applicable): 12/7/22
Date of Environmental Commitment Record or equivalent: 12/7/22

Briefly list environmental commitments on continuation sheet if needed (i.e., not necessary if included on an attached ECR). Reference additional information, as appropriate (e.g., additional studies and design conditions).

Continuation sheet:

Build Alternative

The Build Alternative proposes to grind and resurface the existing mainline traveled ways and shoulders on Interstate 280 (I-280) from Saint Charles Avenue to Brannan Street in the City and County of San Francisco. In addition, the Whipple Avenue Pedestrian Overcrossing (POC) will be replaced.

The proposed pavement preservation for traveled way, ramps, and shoulders are as follows:

- Rigid Pavement – Individual slab replacement where the existing concrete slab and base will be replaced with Rapid Strength Concrete (RSC) and the underlying base will be with Rapid Strength Concrete Base (RSCB) at various locations from post miles (PM) R0.0 to PM R3.7.
- Flexible Pavement – Cold-plane 0.25' of existing asphalt concrete (AC) pavement from travel lanes, shoulders, and connector/ramps. Resurface with two lifts, consisting of 0.10' Hot Mix Asphalt, Type A (HMA-A) and 0.15' of RHMA-G. This work is to be performed from PM R0.0 to PM R3.7 (shoulder work only), PM R3.7 to PM R4.1, PM R6.3 to R6.6 (includes grinding of existing concrete pavement), and 29 ramps.
- Polyester Overlay – First prepare the pavement by removing surface contaminants, then repair the pavement if needed, then roughen/grind the deck surface, then apply primer to the prepared deck surface, then apply polyester concrete overlays, and finally allow the polyester concrete overlay to cure. This work to be performed from PM R4.4 to PM R6.4 (Bridge 34-0046) which also includes a grinding of existing concrete pavement of the lower deck from PM R4.4 to PM R4.9.
- Replace traffic striping, pavement markings, and markers.

This alternative also proposes to replace the existing Whipple Avenue POC with a new POC. The proposed work includes to first demolish the existing Whipple Avenue POC, then build a new POC adjacent to the old alignment.

The new POC will have a total length of 1,750 feet with a perpendicular horizontal alignment to the mainline below. The entrance and exit at the west side are the same as at the existing POC but the elevation is reduced at both the west side and the east side utilizing switchback ramps. The main span is 178 feet long with a 1.5% longitudinal slope. The switchback structure on the west side is 517 feet long with a 4% slope. The switchback structure on the east side is 1,055 feet long with a 6.5% slope. The switchback structures can be bypassed with stairs, which decreases the total length of this option to approximately 440 feet. New POC inlets and down drains are proposed to connect to a new proposed concrete-lined ditch or drainage inlets. Old drainage systems will be removed.

The project will require railroad involvement. Access to an existing BART easement will need to be coordinated to demolish the existing POC and construct the new POC. Right of way agreements with various railroad agencies such as BART, MUNI, and UPRR companies will be developed during the PS&E phase to coordinate the replacement of the POC and the other design elements within the railroad right of way corridors.

The project proposes to replace the Whipple Avenue POC to meet seismic standards and correct a nonstandard vertical clearance of 17.2 feet at the number 4 lane of northbound (NB) I-280. The project will also upgrade the path of travel, including the pedestrian/bicyclist structure and its approaches and comply with ADA. There are approximately 29 existing curb ramps along I-280 that the project will correct to meet current standards. The project also proposes to implement other crosswalk enhancements, including accessible pedestrian signals (APSs), pedestrian countdown signals, restriping of crosswalks, and high-visibility crosswalk markings. Efforts will be made to ensure that no permanent changes will negatively affect existing nonmotorized access, connectivity, or comfort. During construction, funds will be allocated for notification measures to inform pedestrians and bicyclists of potential impacts, detours, and road closures.

The project will require right of way acquisition. Three Temporary Construction Easements (TCE) and two Permits to Enter & Construct (PTE&Cs) are required.

Identification of Section 4(f) Properties
Research was conducted to identify publicly owned parks, recreational areas, wildlife and waterfowl refuges, and historic sites within 0.5 mile of the project study area. The project study area for the POC replacement includes Cayuga Playground Park located adjacent to the existing POC. The components of the park include a garden area beneath the overhead BART tracks and wood carvings from a local community artist, baseball diamond area, playground, and tennis court. The park is outside of the project construction limits.

Potential Section 4(f) Uses by the Build Alternative
Construction of the pedestrian overcrossing would require a temporary construction easement (TCE) and a permit to enter and construct (PTEC) that are adjacent to Cayuga Park (See Figure 3). The PTEC is for the access walkway that connects from the existing POC to Alemany Blvd.

The walkway is owned by the City of San Francisco, but it is not connected to Cayuga Park and the walkway itself does not provide a direct access point to enter Cayuga Park. This PTEC will not obstruct access to the park. The TCE is a narrow 15’ wide sliver of property adjacent to the City of San Francisco access walkway that connect from the existing POC to Alemany Blvd. This property is privately owned and does not obstruct access to the park. During construction, access to the park will be open throughout the duration of the project.

Since Cayuga Park is adjacent to the BART tracks, there would be negligible difference in noise from construction and the demolition of the existing POC will be done outside of park hours (6am-10pm). Visual impacts would also be minimal as the park does not have a view of the POC due to the BART tracks obstructing it. Air quality impacts would be temporary during construction. There would be no biological or water quality effects to Cayuga Park. There are no proximity impacts to the Section 4(f) resource.

Following project construction, the project would be visually consistent with the existing freeway infrastructure and would not affect park use. No construction staging or other construction impacts would affect the use or enjoyment of these facilities. Users of Cayuga Park may momentarily see construction equipment as they pass by the project area. However, visual effects would be temporary and short-term during construction. The requirements of Section 4(f) do not apply. The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

Documentation of Consultation and Coordination
The Project Development Team coordinated with the City (SFDPW and SFMTA) on July 16, 2021, August 4, 2021, August 25, 2021, September 10, 2021, December 17, 2021, and July 21, 2022 to discuss the project, its development, and the feasibility of different alternatives and ideas that were proposed. The Whipple POC Alternative was selected due to funding, schedule restraints, and because it does not impact Cayuga Park itself or its access.

The Project Development Team coordinated with the Cayuga Neighborhood Improvement Association (CNIA) on March 16, 2022. Discussions during this outreach meeting included discussion on existing maintenance issues of the POC (drug use, loitering, and graffiti). The majority of the attendants to this meeting claimed to use the POC to go use the MUNI service and not as an access point to enter Cayuga Park.

The Project Development Team coordinated with BART on July 13, 2022. This meeting was to start early coordination with BART to discuss different constraints, such as construction hours and easement property rights. Coordination with BART will continue into the design phase.

Additional Documentation
See the Section 4(f) Analysis Memo prepared for this project for a documented analysis on Cayuga Park, the outreach that was done for this project, the R/W data sheet, and figures of architectural models of the Whipple POC.

See the attached Environmental Commitments Record (ECR) for the avoidance and minimization measures (AMM’s) for this project.

Attachment L

Stormwater Data Report – Long Form

Dist-County-Route: 04-SF-280
Post Mile Limits: R0.00/T7.54
Type of Work: Minor Pavement Preservation
Project ID (EA): 0418000045 (0Q120)
Program Identification:
Phase: ☐ PID ☒ PA/ED ☐ PS&E

Regional Water Quality Control Board(s): San Francisco Bay (Region 2)
Total Disturbed Soil Area: 1.38 PCTA: 0
Alternative Compliance (acres): 0.0 ATA 2 (50% Rule)? Yes ☐ No ☒
Estimated Const. Start Date: 10/30/2024 Estimated Const. Completion Date: 3/1/2027
Risk Level: RL 1 ☐ RL 2 ☒ RL 3 ☐ WPCP ☐ Other:
Is MWELO applicable? Yes ☐ No ☒
Is the Project within a TMDL watershed? Yes ☐ No ☒
TMDL Compliance Units (acres): 0.00
Notification of ADL reuse (if yes, provide date): Yes ☐ No ☐ Date: TBD in PS&E

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E only.

Analette Ochoa — 9/30/2022
Analette Ochoa, P.E., Registered Project Engineer — Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Al B. Lee — 11-18-22
Al B. Lee, Project Manager — *Date*

Amrinder Jhajj — 11/28/2022
Amrinder Jhajj, Designated Maintenance Representative — *Date*

Kimberly White — 12/9/22
Kimberly White, Designated Landscape Architect Representative — *Date*

Mojgan Osooli — 12/15/2022
Mojgan Osooli, District/Regional Design SW Coordinator or Designee — *Date*

[Stamp Required at PS&E only]

Attachment M

Transportation Management Plan Data Sheet

TRANSPORTATION MANAGEMENT PLAN DATA SHEET
(Preliminary TMP Elements and Costs)

Co/Rte/PM SF – 280 – R0.0/T7.5 EA 0Q1200 Project ID 0418000045 Van Engineer Hew

Project Limit: In the City and County of San Francisco on State Route I-280 from the San Mateo County Line to Brannan Street

Project Description: CAPM Project Upgrade median barrier, rehabilitate drainage systems, upgrade facilities to ADA standards and replace POC No. 34-0096 (Whipple Ave)

1) Public Information

- ☐ a. Brochures and Mailers $
- ☒ b. Press Release
- ☐ c. Paid Advertising $
- ☐ d. Public Information Center/Kiosk $
- ☐ e. Public Meeting/Speakers Bureau
- ☐ f. Telephone Hotline
- ☐ g. Internet, E-mail
- ☐ h. Notification to impacted groups (i.e. bicycle users, pedestrians with disabilities, others…)
- ☒ i. Others As determined by PIO $ 15,000

2) Traveler Information Strategies

- ☒ a. Changeable Message Signs (Fixed) $
- ☒ b. Changeable Message Signs (Portable) $ 100,000
- ☐ c. Ground Mounted Signs $
- ☐ d. Highway Advisory Radio $
- ☐ e. Caltrans Highway Information Network (CHIN)
- ☐ f. Detour maps (i.e. bicycle, vehicle, pedestrian...etc)
- ☐ g. Revised Transit Schedules/maps
- ☐ h. Bicycle community information
- ☐ i. Others _____ $

3) Incident Management

- ☒ a. Construction Zone Enhanced Enforcement Program (COZEEP) $ 300,000
- ☐ b. Freeway Service Patrol $
- ☐ c. Traffic Management Team
- ☐ d. Helicopter Surveillance $
- ☐ e. Traffic Surveillance Stations (Loop Detector and CCTV) $
- ☐ f. Others _____ $

TMP Data Sheet (cont.)

4) Construction Strategies

- [x] a. Lane Closure Chart
- [ ] b. Reversible Lanes
- [x] c. Total Facility Closure
- [ ] d. Contra Flow
- [ ] e. Truck Traffic Restrictions $ _____
- [ ] f. Reduced Speed Zone $ _____
- [x] g. Connector and Ramp Closures
- [ ] h. Incentive and Disincentive $ _____
- [ ] i. Moveable Barrier $ _____
- [x] j. Maintain Traffic $ 75,000
- [ ] k. Others _____ $ _____

5) Demand Management

- [ ] a. HOV Lanes/Ramps (New or Convert) $ _____
- [ ] b. Park and Ride Lots $ _____
- [ ] c. Rideshare Incentives $ _____
- [ ] d. Variable Work Hours
- [ ] e. Telecommute
- [ ] f. Ramp Metering (Temporary Installation) $ _____
- [ ] g. Ramp Metering (Modify Existing) $ _____
- [ ] h.Others _____ $ _____

6) Alternate Route Strategies

- [ ] a. Add Capacity to Freeway Connector $ _____
- [ ] b. Street Improvement (widening, traffic signal... etc) $ _____
- [ ] c. Traffic Control Officers $ _____
- [ ] d. Parking Restrictions
- [ ] e.Others _____ $ _____

7) Other Strategies

- [ ] a. Application of New Technology $ _____
- [ ] b.Others _____ $ _____

TOTAL ESTIMATED COST OF TMP ELEMENTS = $ 490,000

*Please note that any change in project scope, schedule, or cost will require re-submittal of TMP Data Sheet request.

PREPARED BY Stan Kung DATE 6/20/2022

APPROVAL RECOMMENDED BY Lance Hall DATE 6/20/2022

State of California Agency
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Memorandum

Making Conservation
a California Way of Life

To: LESTER LEE
District 4 TMP Manager

Date: May 19, 2022

From: NAME (PETER AGUILERA)
Title – Branch Chief

Subject: REQUEST FOR TRANSPORTATION MANAGEMENT PLAN DATA SHEET

Project Data

PROJECT MANAGER (Al B. Lee)	(510-715-8663)
PROJECT ENGINEER (Van Hew)	(510-362-6092)
DIST-EA: 04-0Q1200 PROJECT ID: 0418000045 PROGRAM CATEGORY: SHOPP 20.10.201.121 - Pavement Preservation	
PROJECT COMMON NAME: CAPM/POC	
CO-RTE-PM: SF-280-R0.0/T7.5	
LEGAL DESCRIPTION: In the City and County of San Francisco on State Route I-280, from the San Mateo County line to Brannan Street.	
DETAILED WORK DESCRIPTION: The purpose of the project is Capital Preventive Maintenance (CAPM), upgrade concrete median barrier, rehabilitate drainage systems, upgrade facilities to Americans with Disabilities Act (ADA) standards, and replace Whipple Avenue Pedestrian Overcrossing (POC) No. 34-0096.	
CONSTRUCTION COST ESTIMATE: $82,958,000	
PROJECT PHASE: PSR □ PR √ PS&E □	
TASK CODE: 160	TASK FINISH DATE: July 31, 2022

Traffic Impact Description

A) The Project includes the following:
(Check applicable type of facility closures)

- √ Highway or freeway lanes
- √ Highway or freeway shoulders
- √ Full Freeway Closure
- √ Freeway on/off-ramps
- √ Freeway Connectors
- √ Local streets

B) Major operations requiring traffic control and working days for each

Operation	# of working days
√ Construction new POC	500
√ K-rail (install/removal)	25
√ Install/remove Debris containment system	5
√ Remove & replace existing Bridge railings(upgrade)	0
√ Remove & replace existing retaining wall median barrier (upgrade)	120
√ Upgrade ADA ramps	150
√ Cold plane/Resurfacing/Slab Replacement existing pavement	300
√ Perform digouts (if needed)	Included
√ Striping/Restriping	80
√ Polyester overlays	250
√ Other: remove existing POC (Demolition)	40
Total days requiring traffic control	500

C) Project staging description and # of working days required per stage:

Stage Description	# of working days
1. Temporary On-ramp Closures	40
2. Temporary Off-ramp Closures	40
3. Temporary Bridge Closures	
4. Temporary Bridge Lane Closures	250

5. Temporary Freeway connector Closures _____10_____

Total construction days _____340_____

D) Have you considered any construction strategies that can restore existing number of lanes?

□ Temporary Roadway Widening Structure Involvement?
Yes _____ No ___X___ if "yes", notify Project Manager
√ Lane Restriping (Temporary narrow lane widths)
□ Roadway Realignment (Detour around work area)
√ Median and/or Right Shoulder Utilization
□ Use of HOV lane as a Temporary Mixed Flow Lane
√ Staging alternatives** (Explain below)
**One or more lanes maybe closed during construction

ATTACHMENTS

- Request Memo
- Project Initiation Report (w/ Original TMP Data Sheet)
- Project Location Map
- Whipple Avenue POC layout
- Strip Map
- Curb Ramp location layouts

Van Hew
Project Design Engineer

510-362-6092
Contact Phone Number

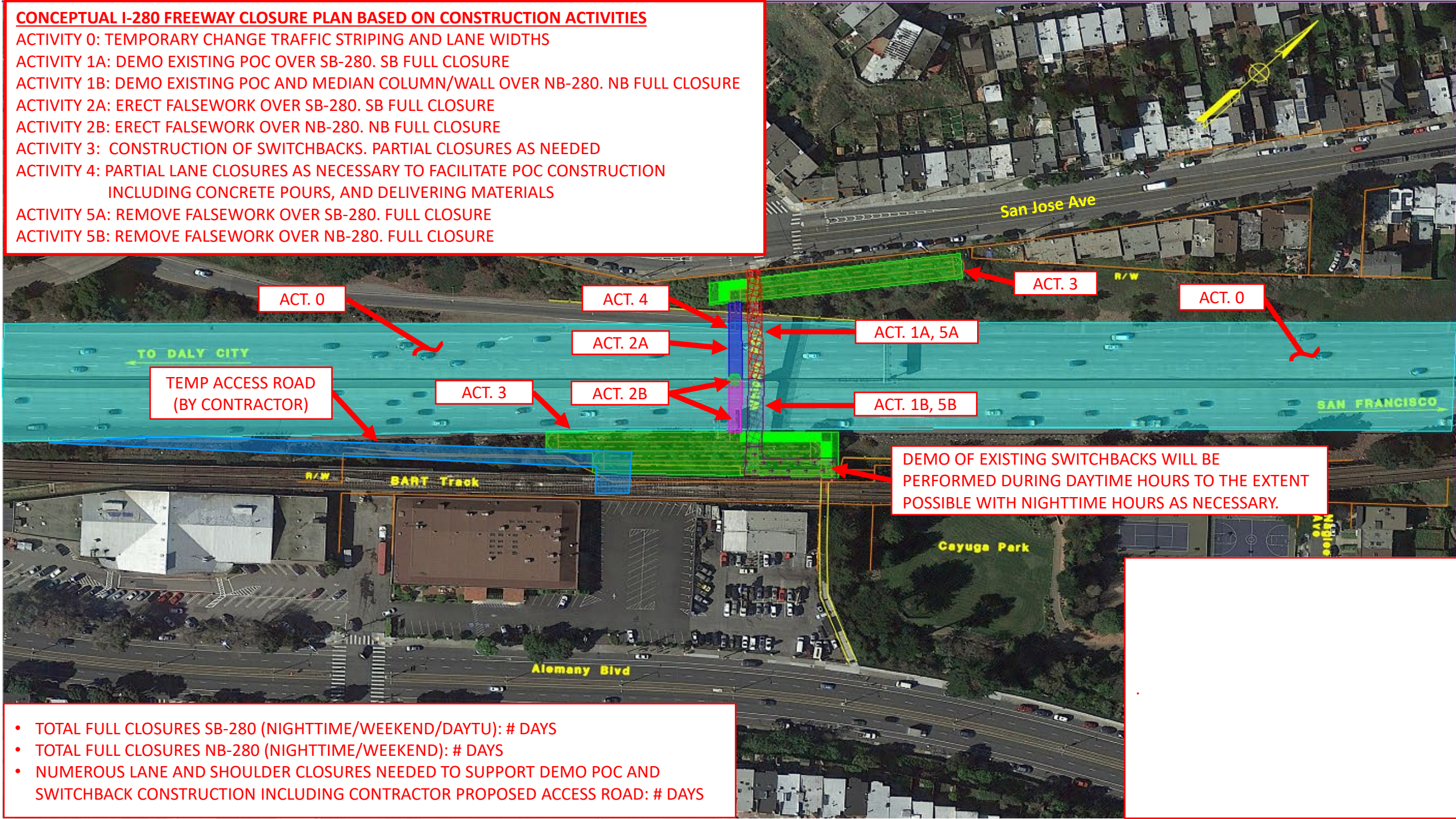
Peter Aguilera
Senior Engineer

Attachment N

Stage Construction Layout

CONCEPTUAL I-280 FREEWAY CLOSURE PLAN BASED ON CONSTRUCTION ACTIVITIES

ACTIVITY 0: TEMPORARY CHANGE TRAFFIC STRIPING AND LANE WIDTHS
ACTIVITY 1A: DEMO EXISTING POC OVER SB-280. SB FULL CLOSURE
ACTIVITY 1B: DEMO EXISTING POC AND MEDIAN COLUMN/WALL OVER NB-280. NB FULL CLOSURE
ACTIVITY 2A: ERECT FALSEWORK OVER SB-280. SB FULL CLOSURE
ACTIVITY 2B: ERECT FALSEWORK OVER NB-280. NB FULL CLOSURE
ACTIVITY 3: CONSTRUCTION OF SWITCHBACKS. PARTIAL CLOSURES AS NEEDED
ACTIVITY 4: PARTIAL LANE CLOSURES AS NECESSARY TO FACILITATE POC CONSTRUCTION INCLUDING CONCRETE POURS, AND DELIVERING MATERIALS
ACTIVITY 5A: REMOVE FALSEWORK OVER SB-280. FULL CLOSURE
ACTIVITY 5B: REMOVE FALSEWORK OVER NB-280. FULL CLOSURE



DEMO OF EXISTING SWITCHBACKS WILL BE PERFORMED DURING DAYTIME HOURS TO THE EXTENT POSSIBLE WITH NIGHTTIME HOURS AS NECESSARY.

- TOTAL FULL CLOSURES SB-280 (NIGHTTIME/WEEKEND/DAYTU): # DAYS
- TOTAL FULL CLOSURES NB-280 (NIGHTTIME/WEEKEND): # DAYS
- NUMEROUS LANE AND SHOULDER CLOSURES NEEDED TO SUPPORT DEMO POC AND SWITCHBACK CONSTRUCTION INCLUDING CONTRACTOR PROPOSED ACCESS ROAD: # DAYS

Attachment O

SHOPP Project – Accomplishment – Performance Measures – Benefits

SHOPP Project - Accomplishment - Performance Measures - Benefits

District: 04 **Tool ID:** 17844 **Project ID:** 0418000045 **EA:** 0Q120 **Co-Rte-PM:** SF-280-R0.0/T7.5 (Primary Location) View/Print PIR (Performance) Report

Bridge B | Pavement | Drainage | Facilities | Safety, Signs & Lighting | Mobility | Roadside | Complete Streets | Sustainability /Climate Change | Advance Mitigation /Mitigation | Major Damage & Betterments | Green-house Gases | Relinquishment

Performance & Accomplishments (PRG)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Pre-Good	Pre-Fair	Pre-Poor	New	Post-Good	Post-Fair	Post-Poor	HQ Program Review - Agree with District?	HQ Comment	Review Date	Performance Change Date After Review	Comment
1	A01	Bridge Preservation (201.119)	Bridge and Tunnel Health	Square Feet	2281670.000		2281670.000			2281670.000							
2	A02	Bridge Replacement/New Construction (201.110, .111, .113, .322)	Bridge Seismic Restoration	Square Feet	6001.000			6000.000	1.000	6000.000							
3	A02		Bridge Goods Movement Upgrades					6000.000		6000.000							
4	A07	Fish Passage	No Performance Objective in the SHSMP	Yes/No	No												No
5	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	2.000												
6	B09	Existing Ramps & Connectors (201.121, .122, .120)	No Performance Objective in the SHSMP	Lane Miles	50000.000			50000.000		50000.000							
7	B10	Existing Shoulders (201.121, .122, .120)	No Performance Objective in the SHSMP	Square Feet	500000.000												
8	B25	Asphalt Pavement Minor Rehab (CAPM)	Pavement Class I	Lane Miles	0.752		0.752			0.752							
9	B26	Concrete Pavement Minor Rehab (CAPM)	Pavement Class I	Lane Miles	34.227	13.554	20.673			34.227							SE=37.05, RE=36.46
10	E01	Median Barrier (201.010, .015)	No Performance Objective in the SHSMP	Linear Feet	6255.000			6255.000		6255.000							Remove median barrier and replace with Type 736B, 60M, 60GC mod
11	E02	Crash Cushions (201.010, .015)	No Performance Objective in the SHSMP	Each	10.000		6.000	3.000	1.000	9.000							1 new SMART CC
12	F02	Changeable Message Sign (201.315)	No Performance Objective in the SHSMP	Each	1.000				1.000								1 CMS at PM 6.36, cost $450K.
13	F24	ADA - Repair/Upgrade Curb Ramp (201.361)	No Performance Objective in the SHSMP	Each	31.000			31.000		31.000							
14	F43	ADA - Deficient Elements	ADA Pedestrian Infrastructure	Deficient Elements	31.000			31.000		31.000							
15	F45	TMS Structure Component	Transportation Management System Structures	Each	1.000				1.000								
16	F46	TMS Technology Component	Transportation Management Systems	Each	1.000				1.000								
17	G01	Erosion Control (201.210)	No Performance Objective in the SHSMP	Acres	2.200			2.200		2.200							
18	G02	Planting (Irrigated)	Roadside Rehabilitation	Acres	6.000			6.000		6.000							
19	G07	Worker Safety - Safe Access	Roadside Safety Improvements	Locations	2.000			2.000		2.000							MVP
20	G08	Worker Safety - Barriers	Roadside Safety Improvements	Locations	4.000			4.000		4.000							Replace Fence/ Gate/ Barrier
21	G09	Worker Safety - Miscellaneous Paving/Treatment	Roadside Safety Improvements	Locations	10.000			10.000		10.000							Gore/ Narrow Areas
22	G11	Worker Safety - Miscellaneous Facilities and Equipment (201.235)	No Performance Objective in the SHSMP	Locations	13.000			13.000		13.000							5 Relocate/Remove Irr, 8 Relocate sign
23	H17	Led Lighting	No Performance Objective in the SHSMP	Each	20.000												
24	H18	Overpass/Underpass - Pedestrian & Bike	No Performance Objective in the SHSMP	Each	1.000			1.000		1.000							Whipple Ave POC/Seismic Retrofit by Replacement
25	H32	Is any Location Within the Project Limits Ped/Bike Accessible?	No Performance Objective in the SHSMP	Yes/No	Yes												yes, POC/ramp termini
26	I01	Total Maximum Daily Load Mitigation (Stormwater Mitigation) (201.335)	Storm Water Mitigation	Acres	20.000			20.000		20.000							total cost $4567K inc. to $6420K
27	N02	Quantitative - Proposed Mitigated	No Performance Objective in the SHSMP	MTCO2e	81.000												Materials, construction equipments, routine maintenance
28	N03	Quantitative - Unmitigated	No Performance Objective in the SHSMP	MTCO2e	100.000												Materials, construction equipments, routine maintenance

(Last Saved - 08/17/21 @ 11:08 AM by AMT Admin)

Programming Performance Summary (All Locations)

Program Code	Activity Category	Asset Class	Asset	Performance Value	Performance Measure	Unit	Pre-Good	Pre-Fair	Pre-Poor	Pre-Total	Post Good	New	Post Good+New	Post-Fair	Post-Poor	Post-Total
201.121	Pavement	Primary	Pavement	35.0	Lane mile(s)	Lane mile(s)	13.6	21.4	0.0	35.0	35.0	0.000	35.0	0.0	0.0	35.0

Notes:

1. The crosswalk for reporting performance in the "Programming Performance Summary" was developed to assist the districts on performance reporting requirements for CTC and PCRs. For discrepancies or errors, please notify AM Tool admins via e-mail at CT-TAM@dot.ca.gov.
2. The data summarized in the table represents the performance reported or to be reported in CTIPS.
3. Programming only requires the breakdown of Good, Fair and Poor for Primary and Supplementary Asset Classes.
4. Reporting of bridge pre and post conditions may contain errors if the project RTL is before 2024/25.
5. Reporting drainage pre-total and post good may differ whenever projects contain abandoned/removed culverts as the culvert no longer exists at post construction, is deleted from the pre-total value for posting of the post good value, and gets deleted from the statewide CIP inventory database.
6. Reactive Safety projects will temporally use the same performance outputs of Safety Improvement projects. When the reporting requirements for CTC changes, the logic in the AM Tool will change.
7. During the transition to the new Proactive Safety objective, the performance output for projects with a primary activity category of Proactive Safety (under program codes 015, 112, or 235) will continue to be presented here in the units of measure corresponding to the activities historically reported to date. A change in units to "Annual Fatal and Serious Injury Collisions" for future programming requests is being planned.

SHOPP Project - Accomplishment - Performance Measures - Benefits

District: 04 **Tool ID:** 17844 **Project ID:** 0418000045 **EA:** 0Q120 **Co-Rte-PM:** SF-280-R0.0/T7.5 (Primary Location) View/Print PIR (Performance) Report

Bridge B | Pavement | Drainage | Facilities | Safety, Signs & Lighting | Mobility | Roadside | Complete Streets | Sustainability /Climate Change | Advance Mitigation /Mitigation | Major Damage & Betterments | Green-house Gases | Relinquishment

Performance & Accomplishments (PPC)

	ActID	Activity Detail	Performance Objective	Unit of Measurement	Quantity	Pre-Good	Pre-Fair	Pre-Poor	New	Post-Good	Post-Fair	Post-Poor	HQ Program Review - Agree with District?	HQ Comment	Review Date	Performance Change Date After Review	Comment
1	A01	Bridge Preservation (201.119)	Bridge and Tunnel Health	Square Feet	2358523.000		2358523.000			2358523.000							
2	A02	Bridge Replacement/New Construction (201.110, .111, .113, .322)	Bridge and Tunnel Health	Square Feet	20898.000	2314.000			18584.000	2314.000							
3	A02		Bridge Scour Mitigation			2314.000				2314.000							
4	A02		Bridge Seismic Restoration					2314.000		2314.000							
5	A02		Bridge Goods Movement Upgrades					2314.000		2314.000							
6	A08	Number of Bridges	No Performance Objective in the SHSMP	Each	2.000												
7	A11	Fish Passage Not in the Priority List	No Performance Objective in the SHSMP	Each													
8	A12	Fish Passage in the Priority List	Fish Passage	Each													
9	B09	Existing Ramps & Connectors (201.121, .122, .120)	No Performance Objective in the SHSMP	Lane Miles	50000.000			50000.000		50000.000							
10	B10	Existing Shoulders (201.121, .122, .120)	No Performance Objective in the SHSMP	Square Feet	500000.000												
11	B25	Asphalt Pavement Minor Rehab (CAPM)	Pavement Class I	Lane Miles	0.752		0.752			0.752							
12	B26	Concrete Pavement Minor Rehab (CAPM)	Pavement Class I	Lane Miles	34.227	13.554	20.673			34.227							SE=37.05, RE=36.46
13	E01	Median Barrier (201.010, .015)	No Performance Objective in the SHSMP	Linear Feet	6255.000			6255.000		6255.000							Remove median barrier and replace with Type 736B, 60M, 60GC mod
14	E02	Crash Cushions (201.010, .015)	No Performance Objective in the SHSMP	Each	10.000		6.000	3.000	1.000	9.000							1 new SMART CC
15	F02	Changeable Message Sign (201.315)	No Performance Objective in the SHSMP	Each	1.000				1.000								1 CMS at PM 6.36, cost $450K.
16	F24	ADA - Repair/Upgrade Curb Ramp (201.361)	No Performance Objective in the SHSMP	Each	31.000			31.000		31.000							
17	F43	ADA - Deficient Elements	ADA Pedestrian Infrastructure	Deficient Elements	31.000			31.000		31.000							
18	F45	TMS Structure Component	Transportation Management System Structures	Each	1.000				1.000								
19	F46	TMS Technology Component	Transportation Management Systems	Each	1.000				1.000								
20	G01	Erosion Control (201.210)	No Performance Objective in the SHSMP	Acres	2.200			2.200		2.200							
21	G02	Planting (Irrigated)	Roadside Rehabilitation	Acres	6.000			6.000		6.000							
22	G07	Worker Safety - Safe Access	Roadside Safety Improvements	Locations	2.000			2.000		2.000							MVP
23	G08	Worker Safety - Barriers	Roadside Safety Improvements	Locations	4.000			4.000		4.000							Replace Fence/ Gate/ Barrier
24	G09	Worker Safety - Miscellaneous Paving/Treatment	Roadside Safety Improvements	Locations	10.000			10.000		10.000							Gore/ Narrow Areas
25	G11	Worker Safety - Miscellaneous Facilities and Equipment (201.235)	No Performance Objective in the SHSMP	Locations	13.000			13.000		13.000							5 Relocate/Remove Irr, 8 Relocate sign
26	H17	Led Lighting	No Performance Objective in the SHSMP	Each	20.000												
27	H18	Overpass/Underpass - Pedestrian & Bike	No Performance Objective in the SHSMP	Each	1.000			1.000		1.000							Whipple Ave POC/Seismic Retrofit by Replacement
28	H32	Is any Location Within the Project Limits Ped/Bike Accessible?	No Performance Objective in the SHSMP	Yes/No	Yes												yes, POC/ramp termini
29	I01	Total Maximum Daily Load Mitigation (Stormwater Mitigation) (201.335)	Storm Water Mitigation	Acres	20.000			20.000		20.000							total cost $4567K inc. to $6420K
30	N02	Quantitative - Proposed Mitigated	No Performance Objective in the SHSMP	MTCO2e	81.000												Materials, construction equipments, routine maintenance
31	N03	Quantitative - Unmitigated	No Performance Objective in the SHSMP	MTCO2e	100.000												Materials, construction equipments, routine maintenance

(Last Saved - 12/14/22 @ 11:32 AM by Hubert Wong)

Programming Performance Summary (All Locations)

Program Code	Activity Category	Asset Class	Asset	Performance Value	Performance Measure	Unit	Pre-Good	Pre-Fair	Pre-Poor	Pre-Total	Post Good	New	Post Good+New	Post-Fair	Post-Poor	Post-Total
201.121	Pavement	Primary	Pavement	35.0	Lane mile(s)	Lane mile(s)	13.6	21.4	0.0	35.0	35.0	0.000	35.0	0.0	0.0	35.0

Notes:

1. The crosswalk for reporting performance in the "Programming Performance Summary" was developed to assist the districts on performance reporting requirements for CTC and PCRs. For discrepancies or errors, please notify AM Tool admins via e-mail at CT-TAM@dot.ca.gov.
2. The data summarized in the table represents the performance reported or to be reported in CTIPS.
3. Programming only requires the breakdown of Good, Fair and Poor for Primary and Supplementary Asset Classes.
4. Reporting of bridge pre and post conditions may contain errors if the project RTL is before 2024/25.
5. Reporting drainage pre-total and post good may differ whenever projects contain abandoned/removed culverts as the culvert no longer exists at post construction, is deleted from the pre-total value for posting of the post good value, and gets deleted from the statewide CIP inventory database.
6. Reactive Safety projects will temporally use the same performance outputs of Safety Improvement projects. When the reporting requirements for CTC changes, the logic in the AM Tool will change.
7. During the transition to the new Proactive Safety objective, the performance output for projects with a primary activity category of Proactive Safety (under program codes 015, 112, or 235) will continue to be presented here in the units of measure corresponding to the activities historically reported to date. A change in units to "Annual Fatal and Serious Injury Collisions" for future programming requests is being planned.

Attachment P

Risk Register

RISK REGISTER LEVEL	2	PROJECT NAME	SF-280 Pavement Preservation, Bridge Rail Replacement, Bridge SEISMIC RESTORATION AND ROADWAY SAFETY	DIST-EA	04-0Q120 (0418000045)	Project Manager	Al B. Lee	RISK MANAGER	Gurmukh Thiara	TOTAL COST (Capital +Support)	$105.3M
PROJECT PHASE	PA&ED	PDT MEMBERS		RISK ASSESSMENT INFORMATION						TOTAL DAYS (Construction + Initial review (30 days)+ Closeout (60 days))	490

Risk Identification						Probability	Cost Impact		Time Impact		Phase	Individual Risk	Risk Response			
Status	ID #	Category	Title	Risk Statement	Current Status/ Assumptions	Rating	Rating	Score	Rating	Score	ENG/ CON	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	1	Environmental	Nesting birds and roosting bats underneath existing structure	Nesting birds protected from harassment under the Migratory Bird Treaty Act and unexpected roosting bats may delay construction during the nesting season, resulting in additional cost. Despite best	Bird and bats may be nesting and roosting under the superstructure of the bridge	2-Low	02-Low	4	02-Low	4	CON	Based on projects of similar nature and indicated in the mini-PEAR.	Accept	Schedule contract work to avoid the nesting season or remove nesting habitat before starting work	Environmental	8/9/2022
Active	2	Stakeholders	Public Complaints or Concerns	The POC portion of this project may experience public concerns or complaints during the life of the project leading to additional work to mitigate concerns or complaints resulting to additional cost and schedule delay. Noise complaints, traffic control and shutdown of the existing POC during construction are examples of public concerns and compliants	In the PA&ED and PS&E phase, Delivery team to provide outreach and input to community and stakeholder groups. Community outreach meetings are schedule to get community input. Meetings with City of SF are also scheduled to keep them updated on the progress.	2-Low	02-Low	4	02-Low	4	ENG	POC area is located in urban community and adjacent residents have high baseline noise from the freeway. Construction impacts will minimally affect the community.	Mitigate	During PS&E phase, PIO to continue outreach campaign to keeping public informed and to address their concerns.	PM	8/9/2022
Active	3	Construction	BART Construction Constraints (Outside Agency)	BART restrictions during operational hours may increase construction days and cost due to short construction times working near adjacent BART structure.	In PSE, PDT to coordinate with BART regarding construction work windows near BART structure and account for increased cost and working days.	3-Moderate	04-Moderate	12	08-High	24	ENG	Based on similar projects working with BART	Mitigate	If BART construction windows are too restrictive, project team to request BART to run shuttle service and provide extra window to demolish existing structure and other activities that are within their offset distance.	Design	11/5/2022
Active	4	Construction	BART Reviews (Outside Agency)	BART PS&E reviews may not be timely or so restrictive or may need more analysis before concurrence of submittals causing delays and extra resources to address. Example comments may be related to providing cathodic protection to steel rebars used.	In PSE, PDT to meet with BART technical team to provide overview of delivery team approach and contents of submittal.	3-Moderate	04-Moderate	12	04-Moderate	12	ENG	Based on similar projects working with BART	Mitigate	Meet with BART early and ensure submittals are detailed and developed and special requirements accounted for.	Design	11/5/2022
Active	5	Design	Hydraulic Facilities	The project may require additional or modified hydraulic facilities leading to improved drainage which will prevent ponding and improve water collection off the roadway, resulting in additional construction capital and Design/Hydraulic support hours.	Hydraulics has currently scoped for possible relocation of 9 existing inlets	3-Moderate	02-Low	6	02-Low	6	ENG	Hydraulics Recommendation	Accept	All the necessary bird mitigation measures and specifications will be included in the project plans and specification during PS&E. If nesting birds are encountered near construction, contractor will need to stop all nearby construction activities and RE to notify the biologist. Construction activities will only proceed when the area is cleared by the biologist.	Design	8/9/2022
Active	6	Construction	Unidentified Utility Conflicts	The project may have utility conflicts with the work proposed leading to utility relocation resulting in additional cost and time.	Design will request from the Utility Coordination group utility maps which will be delineated into utility Plan Sheets in PS&E.	2-Low	02-Low	4	02-Low	4	CON	Existing utilities in conflict with construction activities.	Avoid	Clearly identify all existing utilities within project footprint and delineate on Utility Plan (U) Sheets and try to design the project scope around the existing utilities.	Design	8/9/2022
Active	7	Construction	Material cost	Increase in cost of materials may lead to higher bid than the Engineer's estimate resulting in additional cost.	Advertisement of this project is anticipated for the year 2024. Material prices taken from historical contract cost database may not be accurate during improving economy.	4-High	02-Low	8	02-Low	8	ENG	Recent project construction cost data showing a general trend of higher material costs compared to historical material cost data.	Accept	Design will need to account for potential material cost escalation in the estimate at the PA&ED and PS&E phases. The additional costs will be captured in the BEES and as a work item in the supplemental funds as neccassry.	Design	8/9/2022
Active	8	PM	Project Schedule	DES Structures Design informed of challenges of designing 8 retaining walls and the POC on this project and can not afford inefficiencies in re-design due to alignment changes, etc.	PDT is communicating weekly with DES to minimize or plan for changes so that DES can work as efficient as possible.	3-Moderate	02-Low	6	04-Moderate	12	ENG		Mitigate	PM will need to split the project once the cost estimate is provided for the POC.	PM	8/9/2022
Active	9	ROW	Private Property (TCE)	15' wide strip at NE corner of Auto Repair business lot has been identified as a TCE for the duration of the POC project and owner may not come to agreement with the State and trigger CTC hearing.	Right of Way team to appraise TCE parcel, and beginning negotiations with owners early in PS&E process.	2-Low	04-Moderate	8	04-Moderate	8	ENG	Based on the Department's experience with past projects.	Accept	The PDT will need to obtain verification of temporary construction easements, right of way, and initiate the process during PS&E Phase.	ROW	8/9/2022
Active	10	Environmental	Environmental Pollution (Air, Noise, Dust)	Demolotion of existing POC will impact community with noise and dust.	Analyze noise impacts and mitigation actions including public outreach.	1-Very Low	01-Very Low	1	02-Low	2	CON	Based on Department's experience with past projects and similar scope.	Accept	Construction contract specifications, standards and special provisions would include measures to minimize impact.	Environmental	8/9/2022
Active	11	Construction	Traffic Management Plan	Full closures needed on I-280 to perform demolition of existing POC work, erect and take down falsework and other partial closures. Large diameter median CIDH and column construction will need lane reconfiguration.	Analyze TMP for POC and CAPM and Polyester Overlay operations.	3-Moderate	04-Moderate	12	04-Moderate	12	CON	Project near businesses and local roads.	Mitigate	Follow TMP and utilize COZEEP consider daytime or nighttime work.	Construction	8/9/2022
Active	12	Geotechnical	Differing Site Conditions	Constructability issues may occur during pile driving or excavation leading to unanticipated additional work mitigate or resolve problems resulting in additional cost and schedule delays to the project.	During construction, issues may occur. If found, they will have to be resolved and mitigated onsite.	2-Low	02-Low	4	02-Low	4	CON	Lack of Geotech informations	Accept	Geotechnical studies will be performed during PA&ED phase.	Construction	8/9/2022
Active	13	Construction	Buried Man Made Objects	Unanticipated buried man-made objects uncovered during construction require removal and disposal resulting in additional costs.	PIR design based on as-builts and aerial photos.	2-Low	02-Low	4	02-Low	4	CON	Run into unanticipated buried objects during construction.	Mitigate	RE to tap into supplemental funds to pay for this risk if it occurs.	Construction	8/9/2022

Printed Date: 12/12/2022

RISK REGISTER LEVEL	2	PROJECT NAME	SF-280 Pavement Preservation, Bridge Rail Replacement, Bridge SEISMIC RESTORATION AND ROADWAY SAFETY	DIST-EA	04-0Q120 (0418000045)	Project Manager	Al B. Lee	RISK MANAGER	Gurmukh Thiara	TOTAL COST (Capital +Support)	$105.3M
PROJECT PHASE	PA&ED	PDT MEMBERS		RISK ASSESSMENT INFORMATION						TOTAL DAYS (Construction + Initial review (30 days)+ Closeout (60 days))	490

Risk Identification						Probability	Cost Impact		Time Impact		Phase	Individual Risk	Risk Response			
Status	ID #	Category	Title	Risk Statement	Current Status/ Assumptions	Rating	Rating	Score	Rating	Score	ENG/ CON	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	14	Construction	Discovery of Hazardous Material	The project may encounter hazardous material during construction leading to necessary compliance with Caltrans hazardous materials policy, resulting in additional support hours for Environmental Engineering and Design and Construction Capital for remediation of the hazardous material.	Very little if any hazardous waste or materials due to scope of work and project vicinity.	1-Very Low	01-Very Low	1	01-Very Low	1	ENG	Removal of concrete and bridge railing scope.	Accept	During PA&ED phase, CT Environmental Engineering Hazardous Waste Branch will be consulted to see if a Preliminary Site Investigation Report (SIR) is needed for this project.	Design	8/9/2022
Active	15	Construction	Degrading Site Conditions	Construction activities may degrade site condition leading to additional cost and schedule delays to the project.	Possibility is at the location of the new Whipple Ave POC	2-Low	02-Low	4	04-Moderate	8	CON	Excavation	Mitigate	Determine need for mitigation at an early stage.	Construction	8/9/2022
Active	16	Construction	Weather Delays	Unfavorable weather condition may affect certain construction activities and/or weather dependent activities leading to potential delay of critical path activities resulting in schedule delays.	Paving schedule will not be a problem.	2-Low	02-Low	4	02-Low	4	CON	San Francisco is full of microclimates and temperature can change a lot in a single day.	Mitigate	Schedule work during warm weather or favorable weather condition for paving operations to avoid schedule delays.	Construction	8/9/2022
Active	17	Landscape	Plant Establishment	At least 1-year plant establishment/ replacement planting is required by policy.	Schedule includes 1-year plant establishment.	2-Low	02-Low	4	02-Low	4	ENG	If replacement planting is required longer than one year.	Accept	If proposed milestone will need to be adjusted, PM will process a PCR to accommodate additional years of plant establishment requirement.	Landscape Architecture	8/9/2022
Active	18	Design	Scope Creep	Large value, various scope project tend to attract scope creep from functional units that are seeking improvements such as ADA and crosswalk improvements.	Cost to upgrade crosswalks and ADA ramps were added in PIR.	3-Moderate	02-Low	6	02-Low	6	ENG	Design has verified scope and checked with program advisors as to appropriate scope of work for this multi-asset PAED project.	Mitigate	Design to continue to limit and control scope of work and work with program advisors. This risk may be retired after PAED completion to lock in scope at onset of PSE.	Design	8/9/2022
Active	19	Project Management	CMGC Contractor	Project is recommended for CMGC Delivery. Risks include delays in procuring CMGC and Independent Cost Estimator contracts.	PDT is procuring CMGC contractor and target to have contractor on board by Summer 2023.	2-Low	02-Low	4	04-Moderate	8	ENG	CMGC procurement can be a long lead item and risk of being ineffective if brought on too late in the PS&E process.	Mitigate	PDT team to engage and ensure that procurement process is managed through out RFQ, SOQ review, Selection and CMGC Contract negotiations.	Project Management	8/9/2022
Active	20	Design	Utilities	Project utility and other infrastructure verifications at San Jose Avenue and other POC locations are needed during PSE design.	City sewer line depth at San Jose Avenue could be an issue to designing Wall 1 where tie-backs are needed.	2-Low	02-Low	4	02-Low	4	ENG	Project utilities need to be verified.	Mitigate	During PSE, utilities need to be fully investigated.	Design	8/9/2022
Active	21	Design	CIDH Piles and Tie-Back Construction Risk	Drilling of large CIDH piles have inherent soil situations like voids or unexpected ground water which will cause change orders. Tie-Back operations to fill material may encounter construction changes inherent to the operations.	These risks are typically addressed during construction and contingency set aside for various unknown factors when contractor stops work and submits RFI.	3-Moderate	04-Moderate	12	04-Moderate	12	CON	Based on experience of TYPE Selection Committee comments on other large diameter CIDH and tie-back system construction projects.	Accept	Investigate soil test boring results during PSE and avoid high risk areas if possible and set aside contingency and accept risks.	Construction	11/5/2022
Active	22	Design	BIM Pilot Project	Project is developing PSE with BIM techniques as a pilot project for the Department. New design concepts and tools are introduced.	Project is beginning to implement BIM techniques per HQ BIM guidelines.	2-Low	04-Moderate	8	04-Moderate	8	ENG	PDT are on a learning curve on BIM design techniques.	Mitigate	PDT to set aside time and resources to learn and implement BIM design techniques.	Design	8/9/2022
Active	23	Design	Project Schedule	Risk of missing RTL due to delays in this complex design on a steep and constrained right of way. Risk design items include final retaining wall alignment and delays on ramp geometry (width of ramp)	Final details of wall aligments and ramp geometries will continue throughout PAED and PSE	3-Moderate	04-Moderate	12	04-Moderate	12	ENG	Condensed design schedule creates the risk QC and design issues which could delay RTL	Mitigate	During PA&ED and PS&E phases, district design and bridge design coordinate efficiently to ensure design. Overtime may be an option.	District Design	10/31/2022
Active	24	Structure	Project Schedule	Risk of missing RTL due to condensed design schedule due to delays in completed Bridge Site Submittal.	District design and Bridge design in coordination with each other to further BSS.	3-Moderate	04-Moderate	12	04-Moderate	12	ENG	Condensed design schedule creates the risk QC and design issues which could delay RTL	Mitigate	During PA&ED and PS&E phases, district design and bridge design coordinate efficiently to ensure design. Overtime may be an option.	Bridge Design	10/31/2022

Attachment Q

Landscape Architecture Aesthetics Design Concepts

Whipple – Farallones Pedestrian Overcrossing Design Concepts

Design Intent: Convey movement. Emphasize light, airy aesthetics. Unify with neighborhood and corridor.

MURMURATIONS

Birds in flight formations celebrate the cliff swallow, which is invited to Cayuga Park on its migratory stopover in SF. Cayuga Park is at the Alemany side of the POC and is the southern terminus of SF Green Connections Route 14, emphasizing cliff swallow habitat.

REMEMBRANCE

The trees that were removed to make way for the new POC are referenced through negative space created by textures and/or graphics. Trees are critical infrastructure to support quality of life for humans and the wildlife that lives in and passes through our cities. This new POC will provide a substantial improvement to access across I-280, but at the cost of the trees in its path.

TEXTURE

The wood stakes texture draws from the carved wood sculptures in Cayuga Park.

CONCEPT IMAGES

Murmurations

Remembrance

Carved Wood

MURMURATIONS

MURMURATIONS + TREES (NO TEXTURE)

TREES + WOOD STAKES

MURMURATIONS + TREES + WOOD STAKES